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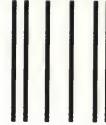
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Terminal Emulation

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Emulation with ReGIS  
and Sixel Graphics



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-QTY-

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OS/2 \_\_\_\_\_  
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- Novell
- 3Com
- Ungermann-Bass
- Hewlett-Packard
- Banyan
- TCP/IP Type \_\_\_\_\_
- Other Type \_\_\_\_\_

**4** **Do you use other terminal emulation products?**

- Yes
- No

If yes, what products?  
\_\_\_\_\_

**5** **Would you like to receive notification of version updates and new products?**

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- No

**6** **Your Reflection® Series Software serial number:**

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Digital VT340 Terminal  
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and Sixel Graphics

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Reflection 2 Plus and Reflection 4 Plus *User Guide*

Version 5.0

May 1994

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# Table of Contents

## Chapter 1

<b>Welcome to Reflection . . . . .</b>	<b>1</b>
If You're a New Reflection User . . . . .	2
If You're a Current Reflection User . . . . .	2
The Reflection Documentation Set . . . . .	3
Documentation Conventions . . . . .	3

## Chapter 2

<b>Installing Reflection . . . . .</b>	<b>5</b>
Equipment Requirements . . . . .	6
Installation . . . . .	6
Specifying Your Keyboard . . . . .	10
If You Need to Change Your Setup Later . . . . .	12
Server Versions of Reflection . . . . .	12
Server Version Count Utility . . . . .	14
Server Versions and Windows . . . . .	14
Other Utilities . . . . .	15

## Chapter 3

<b>Setting Up the Host Connection . . . . .</b>	<b>17</b>
Cabling for Serial Connections . . . . .	17
Checking Serial Ports . . . . .	18
Network Connections . . . . .	19

## Chapter 4

<b>Starting Reflection . . . . .</b>	<b>21</b>
Using Menus and Dialog Boxes . . . . .	21
Using Menus . . . . .	21
Using Dialog Boxes . . . . .	22
Dialog Box Fields . . . . .	23
Keyboard Techniques . . . . .	25
Mouse Techniques . . . . .	26

Getting Help in Reflection . . . . .	27
Moving Around in the Help System . . . . .	28
Quitting Reflection . . . . .	30
<b>Chapter 5</b>	
<b>Establishing Host Communications . . . . .</b>	<b>31</b>
Setting Up Reflection . . . . .	31
Getting to the Setup Dialog Boxes . . . . .	32
Using the Datacomm Setup Dialog Box . . . . .	34
Changing Configuration Values . . . . .	34
Connecting Directly . . . . .	36
Connecting by Modem . . . . .	36
Network Sessions . . . . .	39
The Connection Manager . . . . .	39
Saving Your Setup . . . . .	41
Are You Connected? . . . . .	41
<b>Chapter 6</b>	
<b>Taking a Guided Tour . . . . .</b>	<b>43</b>
Multitasking . . . . .	43
Entering 132-Column Mode . . . . .	44
Reflection 2 . . . . .	45
Reflection 4 . . . . .	46
Displaying Graphics in Reflection 4 . . . . .	47
ReGIS Graphics . . . . .	47
Tektronix Emulation . . . . .	47
Using Page and Display Memory . . . . .	48
Scrolling Display Memory . . . . .	49
Saving Display Memory . . . . .	50
Logging Display Memory . . . . .	51
Clearing Display Memory . . . . .	52
Copy and Paste . . . . .	52
Printing with Reflection . . . . .	53
Printer Setup . . . . .	54
Printing Display Memory . . . . .	54
Printing a PC File . . . . .	56
Printing from a Host Application . . . . .	56

**Chapter 7**

<b>Transferring Files . . . . .</b>	<b>57</b>
File Transfer Overview . . . . .	57
Transferring Single Files . . . . .	60
Sending a File . . . . .	61
Sending a File using Command Language . . . . .	62
Receiving a File . . . . .	62
Transferring Multiple Files . . . . .	63
Predefined Transfer Settings . . . . .	64
Using Zmodem to Connect to WRQ's BBS . . . . .	66
Downloading a File from a Bulletin Board using Zmodem . . . . .	66
Sending a File to a Bulletin Board using Zmodem . . . . .	67

**Chapter 8**

<b>Customizing Reflection . . . . .</b>	<b>69</b>
Creating Configuration Files . . . . .	70
Using a New Configuration File . . . . .	71
Loading a Configuration File when You Start Reflection . . . . .	71
Changing the Color Setup . . . . .	73
Changing the Screen and Function Key Colors . . . . .	73
Graphics Mode Color Setup . . . . .	75
Setting Up Softkeys . . . . .	75
Displaying Softkeys as the Initial Key Labels . . . . .	77
Customizing Your Keyboard . . . . .	78
Writing Your Own Mapping File . . . . .	79
Compiling the Mapping File . . . . .	82
Testing Your Custom Keyboard Mapping . . . . .	82

**Chapter 9**

<b>Exploring Reflection's Other Features . . . . .</b>	<b>85</b>
Emulating an ANSI Terminal . . . . .	85
Allocating Memory . . . . .	87
Using Expanded Memory . . . . .	87
Saving Memory . . . . .	88
State Save . . . . .	89

Running Reflection within Windows . . . . .	89
Using Command Language . . . . .	90
VAX Login Command File . . . . .	91
Command Language Help . . . . .	92
<b>Chapter 10</b>	
<b>Troubleshooting . . . . .</b>	<b>93</b>
Serial Connections . . . . .	93
Testing Your Hardware: The Paperclip Test . . . . .	94
COMCHECK . . . . .	97
Starting Reflection . . . . .	97
“Bad Command or Filename” . . . . .	97
Hardware Problems . . . . .	98
“Not Enough Memory” . . . . .	98
Configuration File Problems . . . . .	99
When All Else Fails . . . . .	100
<b>Chapter 11</b>	
<b>Other WRQ Products . . . . .</b>	<b>101</b>
The Reflection Network Series for DOS . . . . .	101
The Reflection Network Series for Windows . . . . .	102
The LAT Connection . . . . .	102
The TCP Connection . . . . .	103
The 3000 Connection . . . . .	103
NS Open . . . . .	103
Reflection for Windows . . . . .	103
Reflection 2 . . . . .	104
Reflection 4 . . . . .	104
Reflection 3270 . . . . .	104
The Reflection X Connectivity Suite . . . . .	104
Reflection for the Macintosh . . . . .	105
Direct-to-1 . . . . .	105
<b>Index . . . . .</b>	<b>107</b>

# Welcome to Reflection

Welcome to Reflection connectivity software by Walker Richer and Quinn (WRQ). WRQ develops software that connects your personal computer to applications and data residing on minicomputers and mainframes in enterprise-wide information networks.

Reflection establishes and maintains communication between your PC and a host computer. With Reflection, your PC *emulates*, or operates like, a Digital VT series terminal. As far as the host is concerned, your PC running Reflection is a VT terminal: you can use any host application intended for a terminal.

*Reflection 2 Plus* emulates the Digital VT320 and VT420 terminals (except for the split screen and dual session features of the VT420). It also emulates an ANSI terminal for communicating with an SCO UNIX host or a computer bulletin board service (BBS).

*Reflection 4 Plus* emulates the same terminals as *Reflection 2 Plus*, adding emulation of the VT241 graphics terminal (including all of the VT340 terminal's ReGIS and color graphics commands) and the Tektronix 4014 terminal.

In addition to complete terminal emulation, Reflection offers these advantages over a terminal:

- ▲ File transfer to move files between the host and PC
- ▲ Network support to communicate over wide and local area networks
- ▲ Keyboard mapping to customize your keyboard
- ▲ Multitasking to work on PC applications while simultaneously maintaining a host session
- ▲ Reflection command language—Reflection's built-in programming language—to automate tasks
- ▲ Reflection's Application Program Interface (API) libraries, which give you programmatic control of Reflection

## If You're a New Reflection User

If you're new to Reflection, this guide can help you get started. It explains how to install and start Reflection, and provides step-by-step instructions for using many of Reflection's features.

This guide assumes a basic knowledge of how to use the DOS commands CD (CHDIR), DIR, and TYPE. It also assumes you understand how to specify DOS paths. If you're unfamiliar with DOS, refer to your DOS documentation.

## If You're a Current Reflection User

If you're upgrading from an earlier version of Reflection, use this guide to get acquainted with some of the new features in version 5.0:

- ▲ Reflection's new graphical user interface. See "Using Menus and Dialog Boxes" on page 21.
- ▲ An extensive online help system covering over 200 topics about configuring and using Reflection. See "Getting Help in Reflection" on page 27.
- ▲ Easier file transfer with predefined settings for the most commonly used VMS and UNIX host connections. See "Predefined Transfer Settings" on page 64.
- ▲ Support for the Telnet protocol providing terminal communications over a TCP/IP network. See "Installing Reflection" on page 5.
- ▲ Version 5.0 merges the features of Reflection and Reflection Plus into two products called Reflection 2 Plus and Reflection 4 Plus. This means that all Reflection users now have the features that previously were reserved for the Reflection Plus products: support for third-party LAN connection software, a command language debugger, and the full set of Reflection's Application Program Interface utilities.

For more information about new features in Reflection version 5.0, see the WHATSNEW.DOC file included on your product disk.

# The Reflection Documentation Set

The full Reflection 2 and Reflection 4 documentation set consists of the *Technical Reference*, the *Advanced Topics*, the *Command Language* manual, and this *User Guide*. In some cases (with a limited site license, for instance), the end user receives only the *User Guide*.

- ▲ The *Technical Reference* provides detailed information on the topics covered in the *User Guide*, and is a programmer's reference for VT terminal emulation, with a glossary and comprehensive index. Use it to gain a greater understanding of Reflection and VT terminal functions.
- ▲ *Advanced Topics* explains customizing your keyboard, using VT340 graphics and Tektronix 4014 graphics, and how to work with Reflection's Application Program Interface (API).
- ▲ Reflection command language is introduced in this *User Guide* on page 90. The *Command Language* manual describes every Reflection command; it explains how to use them singly and in command files to configure Reflection and carry out communications operations.

## Documentation Conventions

The following conventions are used in this guide:

- ▲ Keys are displayed like this: `Enter ↴`.

When you are instructed to press keys simultaneously, the keys are shown joined by a hyphen, as in `Alt-S`. Don't type the hyphen.

- ▲ This type style indicates commands you should type, responses from the host computer, and samples of programming language.
- ▲ Reflection command language keywords can be typed in either uppercase or lowercase, even though they are shown in this guide in UPPERCASE letters.



## Installing Reflection

To install Reflection, you must run the Setup program, which does the following:

- ▲ It decompresses the Reflection files and creates a working copy of the program.
- ▲ It can modify your AUTOEXEC.BAT and CONFIG.SYS files (you preview any proposed changes, and backup copies of your original files are created if you accept those changes).
- ▲ It can install online help files in English, French, or German.
- ▲ It optionally installs Telnet support that lets you use Reflection with third-party TCP/IP products. Telnet support also can be added after installing Reflection. See the *Reflection Technical Reference* for details.
- ▲ It gives you the option of incorporating *keyboard mapping* information into a *configuration file*.

The Setup program uses keyboard mapping to assign certain keyboard functions to selected keys, so that your PC keyboard operates like a VT keyboard. For example, if you have an AT or Enhanced-style keyboard and you accept the proposed keyboard map, Reflection maps the program function (PF) keys to the top four keys on the keypad, just as they are on VT keyboards. Keyboard mapping is entirely optional.

A configuration file stores this keyboard mapping information and all of Reflection's other settings.

## Equipment Requirements

Reflection requires an IBM personal computer (or 100% compatible) with at least 256K of read/write memory (RAM), although 512K RAM is strongly recommended to take full advantage of Reflection's multitasking and print buffering capabilities.

The Reflection 2 product can run in an optional bit-mapped mode if you need to display more than the normal 80-column width in text mode. Because the screen is bit-mapped, you can display 132 columns and double-high, double-wide characters without buying additional hardware. See page 44 for information.

Reflection 2 requires:

- ▲ Either a monochrome, color, or enhanced graphics display adapter card, and a monitor capable of displaying 80 columns by 25 rows
- ▲ An EGA or VGA card with 256K of RAM if you run Reflection 2 in 132-column bit-mapped mode (with the startup switch /B132)

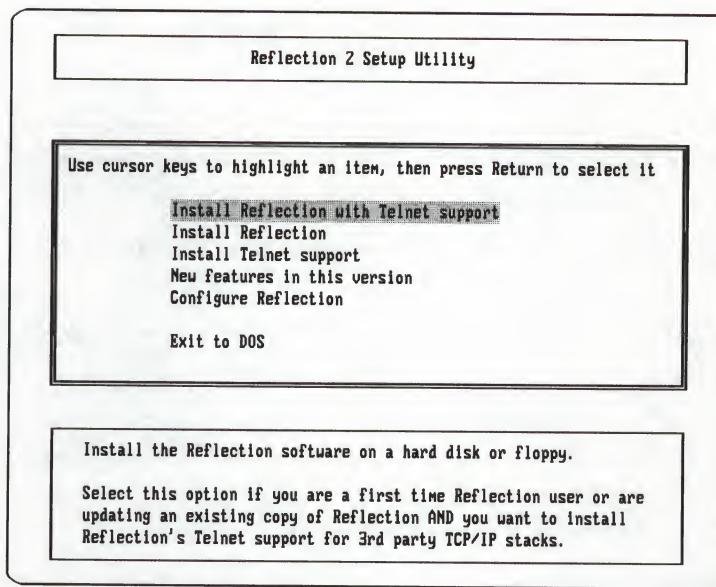
Reflection 4 requires:

- ▲ An EGA or VGA card with 256K of RAM

## Installation

To install Reflection, perform the following steps. At each step in the installation process, Reflection allows you to return to the Setup main menu or to the previous installation screen in case you need to change an installation option.

1. Put the first Reflection disk in drive A or B.
2. Type A:SETUP or B:SETUP at the DOS prompt and press **Enter ↴**. This displays Reflection's welcome screen, and instructions for running the Setup program if you have a monochrome monitor.
3. Press **Esc** to exit, or any other key to continue with Setup and display the Setup main menu.



### Reflection Setup Main Menu

The Setup main menu has the following options:

- ▲ “Install Reflection with Telnet support” installs the Reflection software as well as Reflection’s Telnet support for third-party TCP/IP products.
- ▲ “Install Reflection” installs the Reflection software.
- ▲ “Install Telnet support” lets you add Reflection’s Telnet support option.
- ▲ “New features in this version” describes what is new in this release—it is intended for users who are already familiar with Reflection.
- ▲ “Configure Reflection” lets you set up your Reflection environment using startup switches that customize performance and memory usage. It also walks you through the process of mapping your keyboard, described later in this chapter. You don’t have to use this option if you are satisfied with the configuration choices you make when you first install. You can always reconfigure your installation later by running the Setup program again.
- ▲ “Exit to DOS” exits the Setup program and returns you to the DOS prompt.

4. Select the "Install Reflection" option from the Setup main menu and press **[Enter ↴]**.

**Note:** If you wish to add Telnet support during or after installing Reflection, select the "Install Reflection with Telnet Support" option and press **[Enter ↴]**. For information on this option, see the *Reflection Technical Reference*. ▲

5. Press **[Enter ↴]** to accept the source drive of the Reflection product disk, or type either **A:** or **B:**, and press **[Enter ↴]**.
6. Type the destination drive and directory where Reflection will be installed and press **[Enter ↴]**, or press **[Enter ↴]** to accept the default path.

If you have not installed Reflection before, the default directory is **C:\REFLECT**. If you have an earlier version of Reflection already installed, the default directory may be set by the **SET REFLECT<n>=<drive:><path>** command in your **AUTOEXEC.BAT** file.

**Note:** If you install Reflection to a floppy diskette, you are limited to a "Minimal Install" that provides the basic terminal emulation files and only some of the support files. ▲

7. Confirm that you have entered the proper source drive and destination, then press **[Enter ↴]** to continue the installation. You may also re-enter the source and destination if you wish to make changes.
8. Select the type of installation you want to perform and press **[Enter ↴]**. Select "Install All Files" for a complete installation. Choose "Minimal Install" if you want to install only the basic terminal emulation files.

The minimal installation is useful if you have limited hard disk space. However, it will not install some support files and will not provide complete functionality.

9. Reflection offers online help files in English, French, and German. Press **[Tab]** to move between options. Select which language(s) you wish to install with the **[Spacebar]** key, then press **[Enter ↴]**. You may optionally select all three help files, or none.

If you are installing to a floppy disk, Setup skips this step because you cannot install a help file due to insufficient disk space.

10. Follow the on-screen instructions for inserting Reflection product disks as the Setup program copies files to your destination drive.

Depending on the Setup options you choose, you may not need to insert every product disk during installation.

11. The Setup program displays several startup options that customize performance. You can choose to use or ignore any of these options:

- ▲ /B132 runs Reflection 2 in 132-column bit-mapped mode.
- ▲ /S and /S1 save the graphics screen image when you toggle between Reflection and a DOS application.
- ▲ /E uses your PC's expanded memory, if available, to make more memory available for other PC applications and to improve Reflection's performance.
- ▲ /Y provides compatibility with the DOSEDIT, CED, and NDE DOS command line editors. Do not use this option with DOS 5.0's DOSKEY.COM command line editor.

12. Confirm the startup parameters you have chosen and press **Enter ↴**. You may also re-enter the parameters or skip them.
13. Type the name of the directory that will store Reflection's temporary files and press **Enter ↴**, or press **Enter ↴** to accept the default directory shown on screen. If you have an earlier version of Reflection already installed, the default directory may be set by the `SET RTMP=<drive:><path>` command in your AUTOEXEC.BAT file.

Reflection requires a directory to store temporary files that it creates when you use *state save* to temporarily exit Reflection and when you run Reflection in the background. If you are using a server version of Reflection (running on a shared network drive), you should specify a directory on your hard disk, or a network directory that is not shared by other users, for the temporary files. A RAM drive is recommended and increases Reflection's performance. See page 12 for information on server versions.

14. Select an option for updating your AUTOEXEC.BAT file and press **Enter ↴**. You can either accept the proposed changes shown on screen, discard the changes, or save the changes to a temporary file on your root directory. You can use this temporary file (AUTOEXEC.WRQ) for reference in making your own changes to AUTOEXEC.BAT after completing the installation.

Similarly, Setup will prompt you to accept or discard proposed changes to your CONFIG.SYS file if the FILES or BUFFERS values need to be changed.

15. At this point you can either press any key to continue with optional keyboard mapping, or press **Esc** to complete the installation procedure. If you wish to remap your keyboard, continue with "Specifying Your Keyboard" next.

After installing Reflection, store the original product disks in a safe place.

## Specifying Your Keyboard

The Setup program lets you decide whether to map your PC so that the keyboard operates like a VT keyboard. You can remap your keyboard as part of the Reflection installation, or perform remapping later by choosing "Configure Reflection" from the Setup main menu and following the prompts to the remapping screen.

1. At the screen describing the utility that creates keyboard mappings (KEYCOMP), press **Enter ↴** to begin viewing the various keyboards.

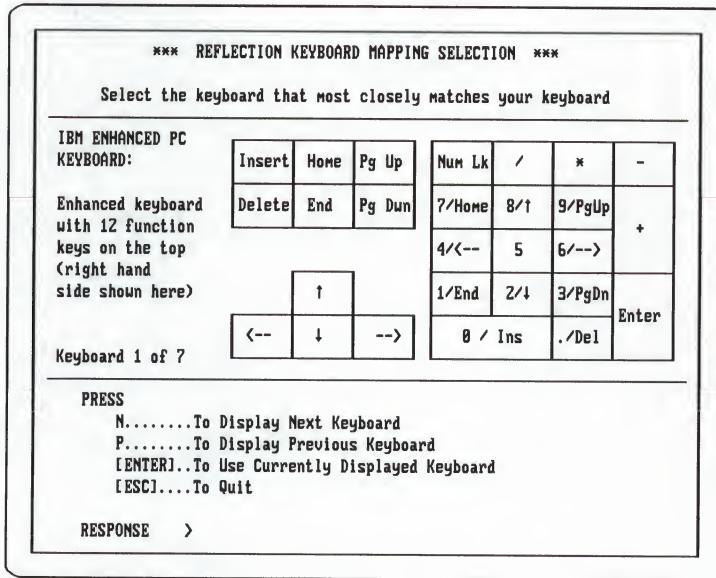
There are seven keyboards from which to choose:

- IBM Enhanced PC
- IBM PC or XT
- IBM AT
- Digital LK250
- Digital LK450
- HP Vectra
- Key Tronic KB-5151

Only the right-hand portion of the keyboard is displayed, showing the cursor keys and numeric keypad: these are the keys to which VT terminal functions will be mapped.

2. Scroll through the keyboard screens by pressing **[N]** (next) or **[P]** (previous).

If you have an Enhanced keyboard, for instance, you should select the screen shown next:



#### Keyboard Selection

3. When your keyboard is displayed, press **[Enter ↴]**.

The Setup program checks your selection. You may be prompted to press a few keys for verification. If you wish to change your selection, press **[Esc]** and then **[R]** to restart the program.

4. In this step, you'll save the keyboard mapping to a Reflection configuration file.

If you're a new Reflection user, press **[Enter ↴]**. The keyboard mapping information is saved as R2.CFG or R4.CFG (depending on which Reflection product you are using).

If you already have a Reflection configuration file called R2.CFG or R4.CFG, press **[Enter ↴]**. If your settings are saved under a different name, press **[N]**, type the name of your configuration file, then press **[Enter ↴]**.

5. After exiting Setup, proceed with the next chapters in this manual.

## If You Need to Change Your Setup Later

You may decide after installing Reflection that you need to change one or more of the setup parameters to enhance Reflection's performance. For instance, if you frequently use a spreadsheet on your host computer, you may want to set up Reflection to automatically start in 132-column bit-mapped mode so that you can view the entire width of the spreadsheet.

To change Reflection's setup, perform these steps:

1. At the DOS prompt, change to the directory that contains your Reflection files, type `SETUP`, and press `Enter ↴`. This displays the Setup menu.
2. Select "Configure Reflection" and press `Enter ↴`.
3. Follow the on-screen prompts and make the configuration changes you want. This procedure is identical to the one described in "Installation" on page 6.

You can also use Setup to decompress individual files from your product disks. Type `SETUP /?` for information.

## Server Versions of Reflection

If you are connected over a network, you may be using a server version of Reflection. A number of users can all run one server copy of the program when it is located on a shared network drive. Your system manager may have already installed Reflection on this shared network drive.

To check whether you are using a server version of Reflection:

1. Choose Command Line from the Tools menu to display the command line.
2. Type `$SERIAL` on the command line and press `Enter ↴` to display your product's serial number.

If there is an "S" in the middle of the serial number, you are using a server version.

If you are using a server version of Reflection, you can take the following steps to ensure that there is no conflict between you and other Reflection users running the program on the network:

- ▲ Make sure you have a place to store any temporary files Reflection may create. These temporary files, which are created when you run Reflection in the background or suspend a session, must not be shared by other network Reflection users.

To find out where your temporary files are being stored, run Reflection and then press **Alt**-**F10** to display the command line. Type the following command at the command line and press **Enter ↴**:

```
DISPLAY $TEMPDIR
```

If your temporary directory is located on your hard drive (such as C: or D:), there is no risk that another user will accidentally use your temporary files. However, if your temporary directory is on a network drive (F: or G:, for instance) you can add the following line to your AUTOEXEC.BAT file to store Reflection temporary files in a local directory:

```
SET RTMP=<local drive and directory>
```

- ▲ You should also make sure your Reflection configuration file is saved in a directory that is not shared with other users. This file stores information about your keyboard mapping preferences and other Reflection settings. To save your configuration file locally, add the following line to your AUTOEXEC.BAT file:

```
SET REFLECT<n>=<local drive and directory>
```

Where *<n>* is the number of the Reflection product you are using, either 2 for Reflection 2, or 4 for Reflection 4.

If you make any changes to your AUTOEXEC.BAT file, remember that they will not take effect until you reboot your PC.

## Server Version Count Utility

A utility HOWMANY.COM, provided with Reflection, displays information about your server version program. Enter HOWMANY <Reflection filespec> at the DOS prompt to display the maximum user count allowed by your server version and the current user count:

```
C:\>HOWMANY F:\REFLECT\R2.EXE

-----
** HOWMANY ** Version 4.2
Reflection Server User Count Program
Copyright (C) 1992 Walker Richer & Quinn, Inc.

-----
F:\REFLECT\R2.EXE
Maximum user count: 5      Current user count: 3
```

In this example, the server version program supports a maximum of five users and three users are currently running Reflection.

If you attempt to exceed the maximum number of concurrent users allowed, Reflection displays the message "You cannot run Reflection: the current number of users is already at the maximum of 5."

All major MS-Net compatible networking software, such as NetWare from Novell, LAN Manager, AdvanceNet, and Net/One from Ungermann-Bass, are supported by the HOWMANY utility. In the case of host-based servers and non-MS-Net compatible networks such as PATHWORKS and PC-NFS, the number of current users displayed by HOWMANY may not be accurate.

## Server Versions and Windows

If you have a server version of Reflection, the utility RCOUNTER.COM allows you to run multiple instances of Reflection from Windows while incrementing Reflection's server version count by only one. Load the utility before starting Windows by typing RCOUNTER at the DOS prompt.

## Other Utilities

Your Reflection product disks include some additional utilities.

- ▲ If you want to know more about your PC's hardware configuration, type `MACHINFO` at the DOS prompt after you install Reflection.
- ▲ To test which serial communications ports are present on your PC and whether they are working correctly, type `COMCHECK` at the DOS prompt. See "Checking Serial Ports" on page 18 for more information about `COMCHECK`.

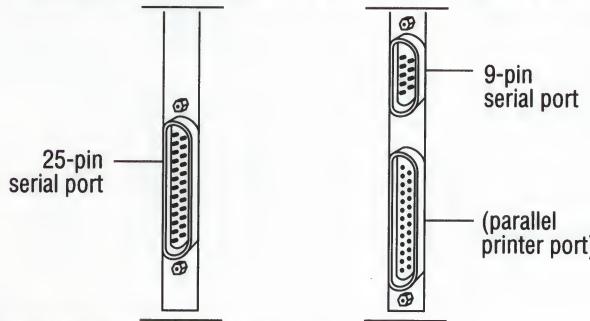


# Setting Up the Host Connection

This chapter helps you determine whether your PC has the proper cabling for establishing a connection to the host. Serial connections—direct and modem connections via a communications port on your PC—are discussed first, followed by network connections on page 19.

## Cabling for Serial Connections

To check your cable connection, look at the cable that goes to the host computer. It should be plugged into a 9-pin or 25-pin male port in the back of your PC:



**PC 25-Pin and 9-Pin Serial Ports**

The 25-pin female port is typically a parallel printer port and can't be used for making the host connection. If further assistance is necessary, see your *Reflection Technical Reference* or contact your system manager.

## Checking Serial Ports

Your PC can have more than one serial port. Reflection needs to know which communications port on the PC the cable is plugged into. This information is stored in your configuration file so that Reflection can communicate serially with the host.

Unfortunately, you cannot tell which COM (communications) port the cable is plugged into by looking at the back of the PC, but you can use the Reflection utility program COMCHECK to list the available COM ports.

1. In your Reflection directory, type COMCHECK and press **Enter ↴**.

You will see a message similar to the following (if you are using a PS/2, COMCHECK checks serial ports 1–8):

```
C:\REFLECT >comcheck
-----
COMCHECK Version 5.00 -- COM Port Verifying Utility
Copyright (C) 1986-1993 Walker Richer & Quinn, Inc.
-----
COM1 seems to be properly installed on IRQ 4.
COM2 seems to be properly installed on IRQ 3.
COM3 does not seem to be installed.
COM4 does not seem to be installed.

C:\REFLECT >
```

### Running COMCHECK

The serial ports that COMCHECK reports to be properly installed can be used for the host connection. In this example, either COM1 or COM2 can be used to connect to the host.

2. Note the COM ports that appear to be properly installed.

For the moment, assume that the cable on the back of the PC is plugged into one of the ports and proceed. You may later have to use trial and error to determine which COM port is the appropriate one for your host connection. (Changing the Connection Type setting is discussed on page 34.)

If you are going to connect a modem using COM 3 or COM 4, COMCHECK is helpful in determining which interrupt (IRQ) your COM port uses. Choose the COM port and IRQ setting indicated by COMCHECK as the Connection Type in the Datacomm Setup dialog box shown on page 34.

If COMCHECK does not find any properly installed COM ports, Reflection cannot communicate with the host. If COMCHECK locks up your PC, there may be conflicting COM ports in the PC. In either case, or if you see a screen message different from the one above, page 97 offers some troubleshooting advice.

## Network Connections

Reflection can connect to a host over a variety of local or wide area networks. To perform accurate file transfer and emulation over your network to the host, the appropriate LAN software must be installed on your PC. At the network prompt, you can then enter the communications server command for connecting to your host. An introduction to session management begins on page 39, and network support is discussed further in the *Reflection Technical Reference*.

Reflection supports the following network:

- ▲ Walker Richer & Quinn's LAT Connection, TCP Connection, and 3000 Connection are products of the Reflection Network Series that provide a LAT connection. The Connection Type choice is CON-MGR, although LAT can still be used.

Type `HELP` at the Connection Manager or Local prompt for a list of commands, or see your Reflection Network Series documentation.

See page 101 for more information about the Reflection Network Series.

- ▲ Digital's LAT or CTERM with PCSA or PATHWORKS. The Connection Type choice for LAT is CON-MGR. CTERM users should choose CTERM.  
Type `HELP` at the Connection Manager or CTERM prompt for a list of commands, or see your Reflection Network Series documentation.
- ▲ Walker Richer & Quinn's Telnet Connection, TCP Connection, and 3000 Connection (Reflection 1 and Reflection 7 HP emulation only) are products of the Reflection Network Series that provide a cost-effective Telnet connection. The Connection Type choice is CON-MGR for users with version 2.0 or higher, and TEL-MGR for users with earlier versions.  
Type `HELP` at the Connection Manager or TEL-MGR prompt for a list of commands, or see your Reflection Network Series documentation.
- ▲ Bridge Communications products for 3Com, Bridge, or IBM (BAPI-compliant software)
- ▲ IBM-LANACS from IBM
- ▲ RAF from Datability
- ▲ Novell NACS (Extended NASI)
- ▲ Novell NetWare for LAT
- ▲ Novell NetWare with Network Products' ACS<sup>2</sup> or Eicon Technology's X.25 server.
- ▲ Novell NetWare for VMS
- ▲ Net/One from Ungermann-Bass
- ▲ Starlan from AT&T
- ▲ Interrupt-14 interface software, as used with Sytek, Torus, BICC, and Wollongong FTP products
- ▲ InterConnections TES 3.0
- ▲ Mobius from FEL Computing
- ▲ AdvanceNet from Hewlett-Packard
- ▲ OfficeShare from Hewlett-Packard: HP Telnet and AdvanceNet

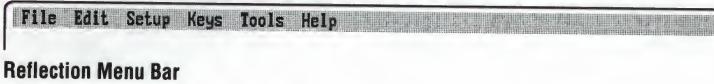
# Starting Reflection

Now that you've installed Reflection and checked your host connection, the next step is to start Reflection:

1. Make sure you're in the Reflection directory.
2. To start Reflection 2, type `R2` and press `Enter ↴`. To start Reflection 4 (VT340 graphics and Tektronix emulation), type `R4` and press `Enter ↴`.

If you saved a configuration file during installation, you should see a copyright notice and then Reflection's menu bar. The menu bar is the line across the top of the Reflection screen that contains the names of six menus.

If you see the Basic Setup dialog box instead, press `Esc` to get to the menu bar:



## Using Menus and Dialog Boxes

You can use either a keyboard or a mouse to operate Reflection. In either case, the primary controls for operating Reflection are menus and dialog boxes.

If you are using a keyboard rather than a mouse, see "Keyboard Techniques" on page 25. If you are using a mouse, see "Mouse Techniques" on page 26.

### Using Menus

To open a menu with a mouse, simply point to the menu name and click once with the left mouse button. There are two ways to open a menu with a keyboard: using shortcut keys or using arrow (cursor) keys.

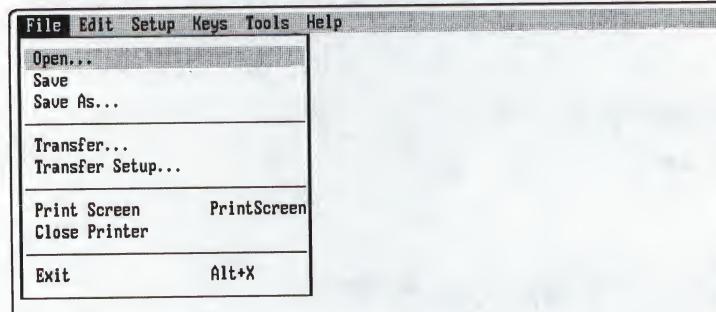
One letter in each menu name is a different color or intensity than the others; this is the shortcut key that opens the menu. To use a shortcut key, hold down `Alt` and press the shortcut key for the menu you want to open. For example, to open the File menu, hold down `Alt` and press `F`.

When you press and release **Alt**, File is highlighted on the menu bar. As an alternative to using the shortcut keys, you can use the **←** and **→** keys to highlight other menu names. Then press **↓** or **Enter ↴** to open the menu. If a menu is already open, using **←** and **→** opens and cycles through the other menus on the menu bar.

To close a menu, press **Esc** or click anywhere outside the menu with the mouse.

## Menu Commands

The items listed on a menu are called commands. Choosing a command either takes the indicated action or opens a dialog box. If a command is followed by three dots (called an ellipsis), that means choosing it opens a dialog box. For example, the File menu has the following commands:



**File Menu Commands**

To choose a menu command with the mouse, point to the command and click once with the left mouse button.

To choose a menu command using the keyboard, you can either use a shortcut key or highlight the command with the **↑** and **↓** keys and press **Enter ↴**. As on the menu bar, a single letter in each menu command is highlighted to indicate the shortcut key.

## Using Dialog Boxes

Choosing a menu command followed by an ellipsis opens a dialog box. A dialog box contains fields that control how Reflection operates. Use the **Tab** key to cycle forward through the fields in a dialog box, or **Shift**-**Tab** to cycle backward.

Every field in a dialog box has a name. Like menu names on the menu bar and command names on the menus, these field names each have one highlighted letter to

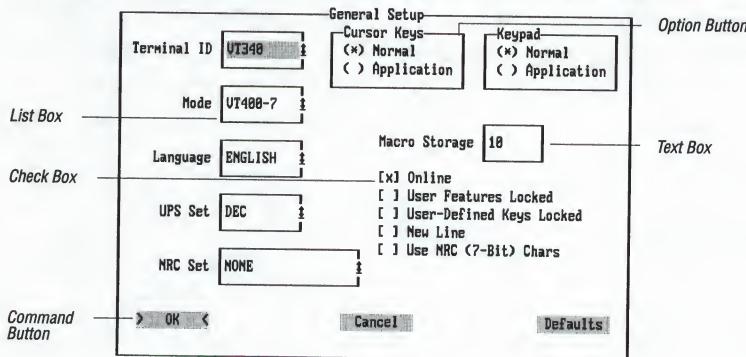
indicate the shortcut key. Holding down **[Alt]** while pressing a shortcut key moves the cursor directly to that field. For example, pressing **[Alt]-F** in the Open File dialog box moves the cursor to the List Files of Type field.

Shortcut keys also take these actions with specific dialog box fields:

- ▲ Using a shortcut key for a check box reverses the state of the check box, so that a cleared check box is selected, and a selected one is cleared.
- ▲ Using a shortcut key for a drop-down list box displays the items available in the list box.
- ▲ Using a shortcut key for a command button takes the action of the command button. For example, **[Alt]-D** activates the Defaults button, which restores the default settings in a setup dialog box.

## Dialog Box Fields

Following is a description of the fields contained in a dialog box.



## Command Buttons

You choose a command button to initiate an action, such as choosing OK to accept the values shown in a dialog box. The command button bracketed by “>” and “<” indicates the one that will be activated if you press **[Enter]**.

The Defaults command button returns all fields in a setup dialog box to their default settings. Choose the Cancel button to close the dialog box without making any changes or taking any actions. Some dialog boxes have additional command buttons (such as Save in the Save File As dialog box).

## List Boxes

List boxes display a list of items and are identified by the up/down arrows (↑) on the right edge of the box. Most list boxes show only one item until you open them.

To open a list box:

- ▲ Click anywhere in the list box with the mouse
- ▲ Tab to the field and press **↑** or **↓**
- ▲ Use the field's shortcut key

To choose an item from the list box, use the **↑** and **↓** keys to highlight the item, then press **Enter ↴**. You can also use the **Home** and **End** keys to move between the first and last items in a list box, and the **PgUp** and **PgDn** keys to move through a long list box.

## Text Boxes

Text boxes are fields where you can type information such as a filename or a configuration value. When you type information in a text box, you can edit that information by positioning the cursor with the **←** and **→** keys, and using the **Delete** and **Backspace** keys. By default, text boxes are in overtype mode. Press **Insert** to toggle between overtype mode and insert mode.

## Option Buttons

Option buttons come in groups of two or more, only one of which can be selected at a time. Using the mouse, click the option button you want to select. With the keyboard, use the arrow keys or **Spacebar** to cycle through the option buttons.

## Check Boxes

Check boxes can appear singly or in groups. Unlike option buttons, more than one or all of the check boxes in a group can be selected. Using the mouse, click a check box to select or clear it. With the keyboard, press **Spacebar**. Pressing a check box's shortcut key moves the cursor to that check box and reverses its current setting.

## Keyboard Techniques

The following table describes the keys used to move around in Reflection and to choose options and commands.

<b>Esc</b>	Closes a dialog box without making any changes, closes a menu
<b>Tab</b>	Cycles forward through the fields in a dialog box
<b>Shift</b> - <b>Tab</b>	Cycles backward through the fields in a dialog box
<b>Alt</b>	Activates the menu bar
<b>←</b> or <b>→</b>	Selects menu names on the menu bar, selects hypertext in online help topics
<b>↑</b> or <b>↓</b>	Performs the following actions: <ul style="list-style-type: none"><li>▲ Scrolls through list boxes</li><li>▲ Chooses menu commands</li><li>▲ Scrolls through online help text</li></ul>
<b>Enter ↴</b>	Performs the following actions: <ul style="list-style-type: none"><li>▲ Executes the action of the highlighted command button</li><li>▲ Executes a highlighted menu command</li><li>▲ Selects the highlighted item in a list box</li><li>▲ Jumps to the online help topic indicated by a highlighted hypertext link</li></ul>
<b>Backspace</b>	Deletes the previous character in a text box
<b>Delete</b>	Deletes the current character in a text box
<b>Insert</b>	Toggles between overtype mode and insert mode in a text box
<b>Spacebar</b>	Selects or clears a check box, cycles through the choices in a group of option buttons

## Mouse Techniques

Using a mouse in Reflection is a simple procedure. On a menu or in a dialog box, simply point to the command or option you wish to choose and press the left mouse button. To close a menu with a mouse, click anywhere on the screen outside the menu.

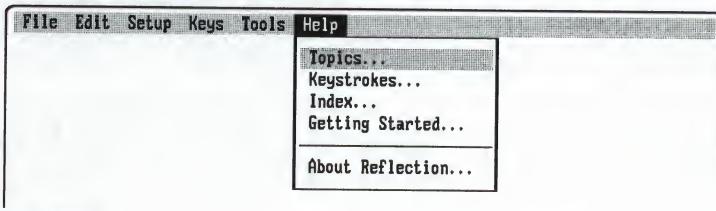
**Note:** If you are using a mouse with Reflection, make sure the mouse driver software included with your mouse is loaded before starting Reflection. ▲

Use the mouse actions below to select items and carry out other actions.

Left button	Performs the following actions: <ul style="list-style-type: none"><li>▲ Chooses a menu from the menu bar</li><li>▲ Chooses a command from a menu</li><li>▲ Selects an item in a dialog box</li><li>▲ Sets tabs in the Tab Setup dialog box</li><li>▲ Clicking and dragging the mouse highlights text on the terminal screen for copy and paste operations (see page 52)</li></ul>
Left button + <b>Shift</b>	Extends a selection for copy and paste operations
Left button + <b>Ctrl</b>	Selects a rectangular area for copy and paste operations
Right button	Clicking on a word transmits the word to the host, followed by a carriage return. This is useful in some host applications where highlighted words serve as commands.
Right button + <b>Shift</b>	Transmits a word to the host without a carriage return
Right button + <b>Ctrl</b>	Moves the host cursor position to the mouse cursor position

# Getting Help in Reflection

Reflection's online help provides quick access to information about menu commands, dialog box options, Reflection procedures, and command language. Choose Help from the menu bar to display the Help menu.



**Help Menu**

There are five commands on the Help menu:

## Topics

Displays a list of the major topics in the online help system. To select a help topic, click it with the mouse or use the  $\uparrow$  and  $\downarrow$  keys to highlight the topic and press **Enter ↴**.

## Keystrokes

Shows which keystrokes to press to execute Reflection and VT functions, and how functions have been mapped to keystrokes. To select a keystrokes help topic, click it with the mouse or use the  $\rightarrow$  and  $\leftarrow$  keys to highlight the topic and press **Enter ↴**. You can also use **PgUp** and **PgDn** to scroll through the keystrokes help topics.

## Index

Displays an alphabetical listing of all online help topics. To select an index entry, click it with the mouse or use the  $\uparrow$  and  $\downarrow$  keys to highlight the index entry and press **Enter ↴**.

## Getting Started

Provides introductory information that explains how to use Reflection's graphical user interface, and how to use the online help system. If you are a new Reflection user, we recommend you read this help topic first.

## About Reflection

Displays information about the version of Reflection you are using, including the serial number for your product.

## Moving Around in the Help System

Reflection provides several methods for navigating within the help system. If a help topic is longer than the help list box, you can scroll through the information by using the **↑** and **↓** keys and the **PgUp** and **PgDn** keys, or by clicking the scroll bar to the left of the window with the mouse.

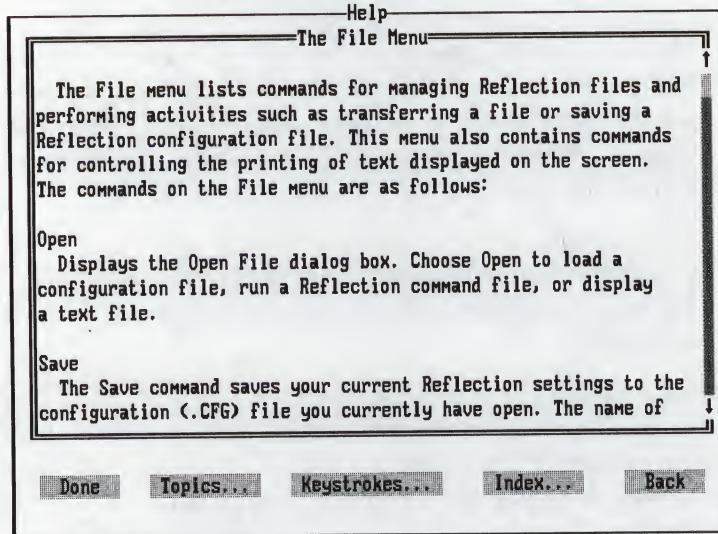
## Hypertext Links

When you are in a help topic, you can use the red highlighted hypertext links to jump directly to another topic. As you use the hypertext links to move from one help topic to another, Reflection remembers the sequence and lets you step back through the topics.

To use a hypertext link, click it with the mouse, or press **←** or **→** until the hypertext is highlighted and then press **Enter ↴**. If there is more than one hypertext link displayed on the screen, the arrow keys cycle through each of them.

## Help Command Buttons

A typical help dialog box looks like this:



Help Dialog Box

Use the following command buttons shown at the bottom of the Help dialog box to move around in the help system:

Done

Exits the help system

Topics

Opens the Help Topics dialog box

Keystrokes

Opens the Keystrokes Help dialog box

Getting Started

Opens the Getting Started dialog box

Index

Opens the Help Index dialog box

Back

Returns you to the help topic you were previous viewing. You can use this to sequentially step back through a series of help topics, which is helpful if you have used hypertext links to jump from topic to topic. This command button is dimmed if you have not looked at any help topics, or if you have completed retracing your steps through the help system.

## **Status Line Help**

Status line help is available whenever the Reflection menu bar, a menu, or a dialog box is displayed. Status line help is shown at the bottom of the screen and indicates the keystrokes available for the dialog box or menu you are in.

## Quitting Reflection

There are two ways to exit Reflection and return to DOS: using “state save” or a “hard exit.”

### State Save

State save (**[Alt]-[B]**) removes Reflection from memory, yet saves all the settings and display memory associated with your current session to a temporary file. The next time you run Reflection, your session is restored from the temporary file. If, for instance, you are in the middle of creating a message in ALL-IN-1 and you need to exit Reflection to run a large DOS application or Windows, you can press **[Alt]-[B]**: you’ll be at the DOS prompt and Reflection will no longer be in memory. When you run Reflection again (that is, you type **R2** or **R4**), you are right back where you left off, creating your message.

### Hard Exit

Use **[Alt]-[X]** to remove Reflection from memory and return to the DOS prompt.

Everything in display and page memory is erased when you quit Reflection. “Using Page and Display Memory,” on page 48, explains how to save the data stored in display memory.

If your connection to the host is active, and DISCONNECT-ON-EXIT is set to NO (the default), you remain connected when you quit.

See the *Reflection Command Language* manual for details on the SET DISCONNECT-ON-EXIT parameter.

# Establishing Host Communications

If Reflection is configured with the correct communications settings, your PC can establish a connection to your VMS or UNIX host. You can communicate using a direct connection, a modem, or a network.

This chapter first introduces you to configuring Reflection with the appropriate communications settings. It then describes how to connect to a host using serial (direct or modem) and network communications.

## Setting Up Reflection

When you start Reflection, the settings and keyboard mapping information in the configuration file R2.CFG or R4.CFG are used. (If you chose to do any keyboard mapping when you installed Reflection, a configuration file was created.)

Among the settings that a configuration file contains are communications settings. Your host requires certain settings, and you should be aware of them.

With a serial connection, the *baud rate* and *parity* frequently vary, depending on the host and on whether you have a direct or a modem connection.

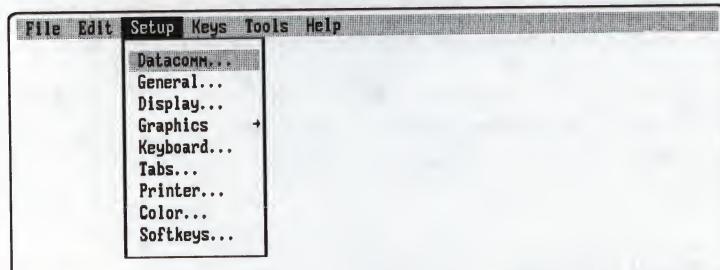
Reflection's default communications settings include a baud rate of 9600 and a parity of 8/NONE. Check with your system manager to see if these settings are appropriate. If not, change them using the steps in this chapter.

Even if all your communications settings are correct, spend a few minutes going through these steps so that you'll be familiar with Reflection's default settings and setup dialog boxes.

## Getting to the Setup Dialog Boxes

To change any of Reflection's settings—such as baud rate, screen colors, and printer settings—use the Setup menu to get to the corresponding dialog box.

Choose Setup from the menu bar or press **Alt**-**S** to open the Setup menu:



**Setup Menu**

The commands on the Setup menu give you access to all of Reflection's setup menus (except File Transfer Setup, which is available from the File menu).

## Setup Dialog Boxes Summary

The following table provides an overview of Reflection's setup dialog boxes and the functions they perform:

### Datacomm

Includes all the fields in the Basic Setup dialog box, and provides access to the Advanced Datacomm Setup dialog box to configure items such as pacing and LAN session number.

### General

Configures options such as the user-preferred supplemental character set, language, and the type of terminal you want Reflection to emulate.

### Display

Controls Reflection's display and video attributes such as 80- or 132-column display, function key labels, and menu bar. It also provides access to the Video Options dialog box and the Advanced Display Setup dialog box.

### Graphics

If you are running Reflection 4, this command gives you access to the setup dialog boxes for Tektronix, ReGIS, graphics printing, and graphics color.

### Keyboard

Customizes the behavior of your keyboard. It also provides access to the Answerback Message dialog box.

### Tabs

Sets or clears tab stops for Reflection.

### Printer

Configures Reflection to print to a specific printer or to a disk file. It also provides access to the Serial Printer Setup dialog box if you are using a serial printer.

### Color

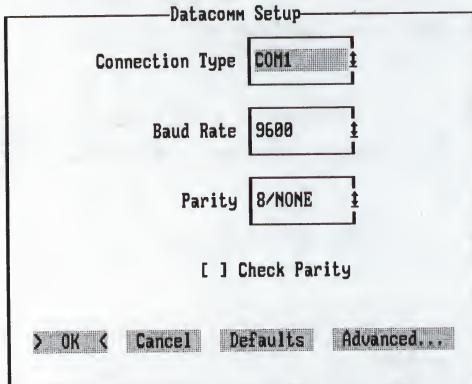
Changes the color of the screen, the function key labels (if displayed), and various host attributes. In Reflection 4, this dialog box controls only text-mode color attributes.

### Softkeys

Customizes eight *softkeys* that can be used, for example, to send strings to the host, as a shortcut to repetitive keystroke operations, or to run Reflection commands and command files.

## Using the Datacomm Setup Dialog Box

Choose Datacomm from the Setup menu to see the Datacomm Setup dialog box:



**Datacomm Setup Dialog Box**

Reflection uses the communications settings stored in R2.CFG or R4.CFG; these include the values shown in the Datacomm Setup dialog box and other setup dialog boxes. The default value for the Connection Type list box is COM1.

Reflection's other setup dialog boxes are similar in appearance and function. In this chapter you'll work primarily with the Datacomm Setup dialog box, since all communications settings you might need to change (COM port, baud rate, and parity) are in this dialog box.

## Changing Configuration Values

Changing the values in any setup dialog box involves these basic steps:

- ▲ Moving to the field whose value you want to change using the mouse, shortcut key, or **Tab**.
- ▲ Selecting a new value for the field.
- ▲ Choosing OK to activate the new values in the setup dialog box.

Activating the current choices temporarily saves them; they remain in effect until you activate new values or exit Reflection. You will want to save the settings that establish communications with the host to your configuration file; this is covered on page 41.

These steps change the value for Connection Type in the Datacomm Setup dialog box:

1. Move to the Connection Type list box:

- ▲ With the mouse, click on the list box.
- ▲ With the keyboard, press **Alt**-**N** (the shortcut key).

The Connection Type values appear in a drop-down list box. The default value, COM1, is highlighted.

2. To select another value, use the **↑** or **↓** keys to highlight the new value, or click it with mouse.
3. Choose OK to activate the new Connection Type value.

If the default values for Connection Type, Baud Rate, or Parity are different than those used by your host, change them using the following guidelines. If you don't know what the correct settings are for your host, you may have to use trial and error to find them.

- ▲ Change one setting at a time, starting with the one for Connection Type. For serial connections, check to see which COM port the cable from the host is plugged into. (If you are using COM3 and above, refer to "Multiple Serial Ports" in the *Reflection Technical Reference*.)
- ▲ Typically, the baud rate is 9600 or 19200 for a direct serial connection. When using a modem, the baud rate is usually between 1200 and 9600.
- ▲ In most cases, the default parity (8/NONE) is correct. Other common parity settings are 7/SPACE and 7/EVEN.
- ▲ If you are connecting over a network, see "Network Connections," which begins on page 19.

## Connecting Directly

When Reflection is set up properly, typically all you need to do to establish a connection to your VMS host is press **Enter ↴** a few times.\* (Your host may have different requirements; check with your system manager.) After pressing **Enter ↴**, you should see your system prompt. The prompt indicates you're successfully connected. At the prompt, log in to the host as you normally do.

If you can log in successfully, the next thing you should do is save your settings; see page 41 for instructions.

If you don't see your host's prompt, you may need to adjust a few settings in the Datacomm Setup dialog box. You can use trial and error, following the steps in "Changing Configuration Values" on page 34, or consult your system manager.

## Connecting by Modem

Before you can log in to a host over a modem, you must first dial into the host. You will probably need to change Reflection's baud rate to correspond to that of your modem; check your modem documentation for its requirements. "Changing Configuration Values" on page 34 explains how to make the changes.

After you have Reflection set for modem communications, make sure you have the attention of the modem (most Hayes-compatible modems respond with **OK** when you enter the **AT** command). Then issue the modem dialing commands as described by your modem documentation.

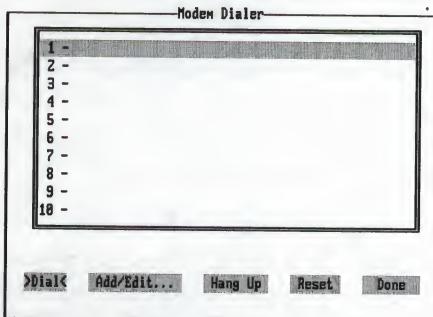
You can also automate dialing using Reflection's Modem Dialer. The dialer is designed for Hayes and Hayes-compatible modems. The Modem Dialer holds up to 10 modem numbers. Use the dialer to add, delete, and change numbers. The dialer uses the supplied Reflection command file **DIALHOST.RCL** (do not rename or overwrite this file).

If your modem is connected to COM 3 or COM 4 on your PC, make sure you have configured Reflection for the Connection Type with the correct serial port interrupt. See "Checking Serial Ports" on page 18.

\* Connecting to a UNIX system or another PC is discussed in the *Reflection Technical Reference*.

If you are connecting by modem to a computer bulletin board system, see "Emulating an ANSI Terminal" on page 85 for information on using Reflection's BBS ANSI terminal type.

After you have Reflection set up for a modem connection, choose Modem Dialer from the Tools menu to open the Modem Dialer dialog box:

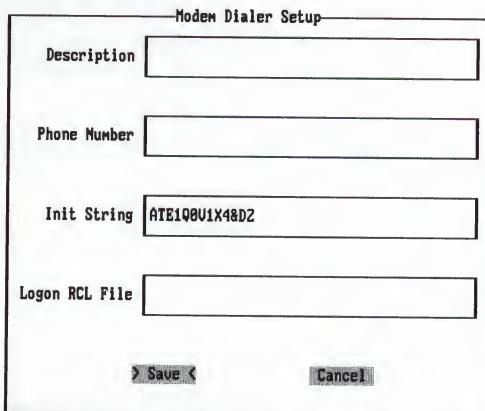


**Modem Dialer Dialog Box**

The Modem Dialer dialog box lists fields 1 through 10. Once you add a number and give it a name (as outlined in the following steps), the name appears in this dialog box, and you choose Dial to establish a connection to the system that is highlighted.

To add a number to the Modem Dialer:

1. Choose Add/Edit in the Modem Dialer dialog box. The Modem Dialer Setup dialog box appears:



**Modem Dialer Setup Dialog Box**

2. Enter a description for the number in the Description text box. For example, if you are connecting to the science department at the local university, you might type Science Dept.
3. Press **Tab** to move to the Phone Number text box, then type the number of your host. To allow for pauses while dialing, you can use a comma between prefix numbers.
4. The Init String text box transfers an initialization string to the DIALHOST.RCL command file. The default string is ATE1Q0V1X4&D2. Check your modem documentation to see what initialization string it sends; if you need to change the string, enter a new one here (up to 37 characters).
5. After connecting to your host, you may want to use Reflection command language (RCL) to automate your login. You would do this by entering a name in the Logon RCL File text box. Command files are explained further on page 90. For now, just leave this text box blank.
6. Choose the Save command button to save your changes. They are stored in a file called RNUMBERS.DAT.

After you save your changes, you are back at the Modem Dialer dialog box. To dial the number you just set up, you would choose Dial.

## Network Sessions

All network users follow roughly the same steps to make a host connection:

1. Load the appropriate network software and then start Reflection.
2. Choose Datacomm from the Setup menu to open the Datacomm Setup dialog box.
3. Select a network interface from the Connection Type list box.

If you're configuring for more than one network session, use the Session # (LAN) text box in the Advanced Datacomm Setup dialog box to select each session. (This field does not apply to the Reflection Network Series.)

4. Once you've selected a network, choose OK to activate your configuration. This closes the dialog box and displays your network prompt. Now you are communicating with your server.

To connect to the host, ask your network supervisor for the network name or IP address of the host to which you want to connect.

## The Connection Manager

Not all networks let you set up and manage more than one session with a host. But Reflection Network Series users and LAT protocol users (whether they are using Digital's PATHWORKS or DECnet PCSA) have the Connection Manager for session management.

These steps offer a brief introduction to using Reflection's Connection Manager:

1. Load your Reflection Network Series software and then start Reflection.
2. Choose Datacomm from the Setup menu to open the Datacomm Setup dialog box.
3. Select CON-MGR from the Connection Type list box, then choose OK.

The CON-MGR> prompt appears.

4. At the Connection Manager prompt, type `HELP` and press **Enter ↴** to see a list of Connection Manager commands.
5. Type `SHOW PROTOCOLS` and press **Enter ↴** to see which networking protocols are available to you.

If you are a PATHWORKS user, you might only see LAT listed; if you are a Reflection Network Series user, you might see the LAT, Telnet, and NS/VT protocols listed.

Once you establish a number of sessions (how many sessions you can have is determined by your network software), move between them by choosing **Next Session** from the **Keys** menu. You can also suspend a session and return to the Connection Manager prompt by choosing **Suspend** from the **Keys** menu.

Welcome to Connection Manager  
Walker Richer & Quinn, Inc.

Type "?" for command help, <Tab> for completion.

Session	Protocol	Host name	Creator	Status
1	LAT	admin	R4	Suspended
2	LAT	email	R4	Suspended
3	Telnet	stats	R4	Current
Available sessions: 1				

CON-MGR> `shou protocols`

LAT	LAT Manager - Reflection Network Series Version 2.0
Telnet	Telnet Manager Version 2.0

CON-MGR> `connection ledger`

### Managing Sessions

Suspending a session or moving from one to another creates a temporary “state” file (similar to the file created when you exit from Reflection with **Alt**-**B**). All session-specific information—screen colors, softkeys, display memory, and so on—is restored when you return to the session. Changes you make to your terminal settings in one session are isolated from the settings you make in another session.

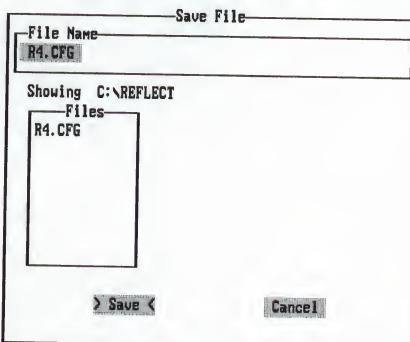
## Saving Your Setup

When you *activate* setup changes by choosing OK in a dialog box, Reflection uses the new values only until you change them again or quit Reflection. If you have established a host connection, you should save your current settings to a configuration file so they can be used again.

To save your configuration to a file:

1. Choose Save from the File menu.

The Save File dialog box appears with a proposed configuration filename of R2.CFG for Reflection 2, or R4.CFG for Reflection 4.



Save File Dialog Box

2. Choose the Save command button to accept the proposed configuration filename.

The next time you run Reflection, your new configuration values will be in effect.

## Are You Connected?

If you have a host connection, continue with "Taking A Guided Tour," starting on page 43. You'll be shown how to use many of Reflection's basic features.

If you are having trouble establishing a connection, "Troubleshooting," which begins on page 93, can help you determine the source of the problem.



# Taking a Guided Tour

This chapter introduces you to some of Reflection's most commonly used features: multitasking, displaying graphics, using page and display memory, and printing.

## Multitasking

A terminal is connected directly to the host, and allows you to run only those applications available on the host. With Reflection, you can run all the host applications you normally use, plus the ones stored on your PC. You can easily move between a host session (or sessions, if your network allows multiple sessions) and PC applications. Reflection continues to work in the background while you work on a PC application in the foreground. This is called *multitasking*.

You can start Reflection, connect to the host, and then press the hot-key to get to the DOS prompt. Reflection maintains your host connection while you run other PC applications. For example, you can start a lengthy file transfer to the host and let it process while you use Microsoft Word in the foreground.

To use the hot-key:

1. Type R2 or R4 and press **Enter ↴** to start Reflection.
2. Press **[Alt]-[right][Shift]**: this hot-keys to DOS and places Reflection in the background. If a host application is processing, it will continue to do so. Now you can use any DOS command or application.
3. Press **[Alt]-[right][Shift]** again to hot-key back to Reflection.

DOS is now in the background and Reflection is in the foreground. Notice the letter "B" in the center of the status line at the bottom of the screen. This indicator appears once Reflection has been placed in the background.

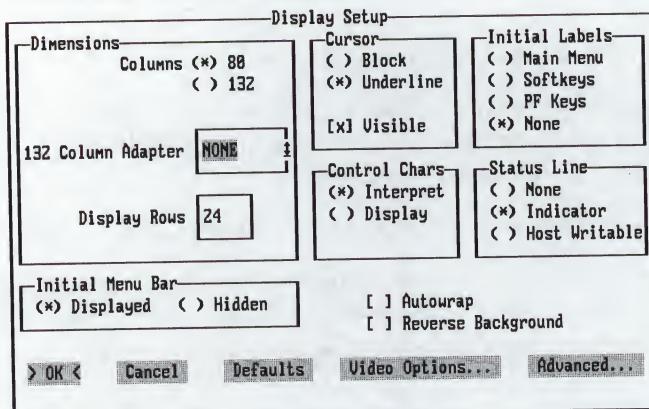
Now that Reflection is "installed" in the background:

- ▲ You cannot increase the value of fields that determine the amount of memory Reflection uses, such as Requested Display Memory in the Advanced Display Setup dialog box.
- ▲ If you have a DOS application running, it stops processing while Reflection is in the foreground.
- ▲ Changing your directory in Reflection does not change your directory after you press the hot-key and toggle to DOS. If you change directories within Reflection using the `CD \<directory>` command and then hot-key to DOS, you'll notice that the command did not change your directory in DOS.

## Entering 132-Column Mode

Reflection lets you view your screen in 132-column mode—how this is done depends on which product you have and whether you have a 132-column video adapter.

For both products, use the Display Setup dialog box to switch from the default 80-column display to 132 columns:



Display Setup Dialog Box

If your host isn't sending 132-column lines to the display, type the following command at the host prompt: `SET TERM/WIDTH=132/NOWRAP`

## Reflection 2

In Reflection 2 you can display 132 columns in one of two ways; which method you should use depends on your hardware (to find out more about your hardware, toggle to the DOS prompt and type `MACHINFO` in your Reflection directory):

- ▲ If your PC is equipped with a 132-column video adapter, find out what type it is (for example, Paradise, Genoa, AST VGA), and then:
  1. Choose Display from the Setup menu to open the Display Setup dialog box.
  2. Choose the 132 Columns option button in the Dimensions group box.
  3. From the 132 Column Adapter list box, select your video adapter.
  4. Choose OK to switch to 132-column mode.
- ▲ If your PC is not equipped with a 132-column video adapter, but you do have an EGA or VGA video adapter, you can still display 132 columns.

Reflection 2 includes a startup switch, `/B132`, that runs the program in bit-mapped mode. When you start Reflection with this switch, the screen is bit-mapped and a 132-column adapter is unnecessary.

To run the bit-mapped program and display 132 columns:

1. Enter the following command at the DOS prompt to start Reflection in bit-mapped mode:

`R2 /B132`

2. Choose Display from the Setup menu to open the Display Setup dialog box.
3. Choose the 132 Columns option button in the Dimensions group box.
4. Choose OK to switch to 132-column mode.

There is a small memory and performance loss for running in bit-mapped rather than text mode.

## Reflection 4

In Reflection 4 you can display 132 columns in one of two ways:

- ▲ If you have a 132-column adapter, use the same steps as described for Reflection 2. This method provides the fastest video performance.
- ▲ If you do not have a 132-column adapter:
  1. Start Reflection 4.
  2. Toggle into graphics mode by pressing **[Alt]-[V]**.

In graphics mode the screen is bit-mapped: 132 columns and double-high, double-wide characters are possible. In text mode, the screen is blue by default; when you go into graphics mode, the default color for the screen is black.

3. Choose Display from the Setup menu to open the Display Setup dialog box.
4. Choose the 132 Columns option button in the Dimensions group box.
5. Choose OK to switch to 132-column mode.

If you want Reflection 4 to always come up in graphics mode for 132-column support, follow these steps:

1. Choose Display from the Setup menu.
2. Choose the Video Options command button to open the Video Options Setup dialog box.
3. In the Initial Video Mode group box, choose the Graphics option button.
4. Choose OK to close the Video Options Setup dialog box, then choose OK again to close the Display Setup dialog box.
5. Choose Save from the File menu to save this setting to your current configuration file (R4.CFG).

The next time you start Reflection, you will be in graphics mode.

# Displaying Graphics in Reflection 4

Reflection 4 emulates two types of graphics terminals: Tektronix 4014 and Digital VT241. The 16-color ReGIS graphics—Digital's *Remote Graphics Instruction Set*—of the VT340 terminal is included. You need an EGA adapter (with at least 256K of video memory) or a VGA adapter.

## ReGIS Graphics

To emulate ReGIS graphics you normally just run your graphics application; it automatically puts Reflection 4 in graphics mode. To see a ReGIS graphics sample without running your host application:

1. In Reflection, toggle to graphics mode by pressing **[Alt]-[V]**.
2. Choose Command Line from the Tools menu to display the command line.
3. Type **TYPE WOMBAT.PIC** and press **[Enter ↴]**.
4. Press **[Esc]** to leave the command line.
5. To toggle back to text mode, press **[Alt]-[V]** again.

## Tektronix Emulation

To emulate Tektronix graphics you normally just run your graphics application, and it puts Reflection 4 in graphics mode. To see a Tektronix graphics sample without running a host application:

1. Choose Command Line from the Tools menu to display the command line.
2. Type **TYPE DEMO.PIC** and press **[Enter ↴]**. This switches Reflection to graphics mode and displays a sample graphic on your screen.
3. Press **[Esc]** to leave the command line.
4. To toggle back to text mode, press **[Alt]-[G]**.

**Note:** Some Tektronix applications may not automatically switch Reflection into Tektronix mode. You may need to change the Auto Enter Character text box in the Tektronix Setup dialog box. See your Reflection *Technical Reference*. ▲

# Using Page and Display Memory

Some terms used frequently in the Reflection documentation are the *display*, *display memory*, and *page memory*. These terms, which describe different types of memory, have special meaning in Reflection. (When you first start Reflection, all of these forms of memory are empty.)

## The Display

In Reflection, the display is like the screen of a VT terminal. The host can position the cursor anywhere on the display, and can write, erase, and alter characters at the cursor position. Typically, the display is 24 lines long, and either 80 or 132 columns wide. If you have an EGA, VGA, or MCGA video adapter, you can set the number of lines on the display in the Display Setup dialog box by changing the value in the Display Rows text box.

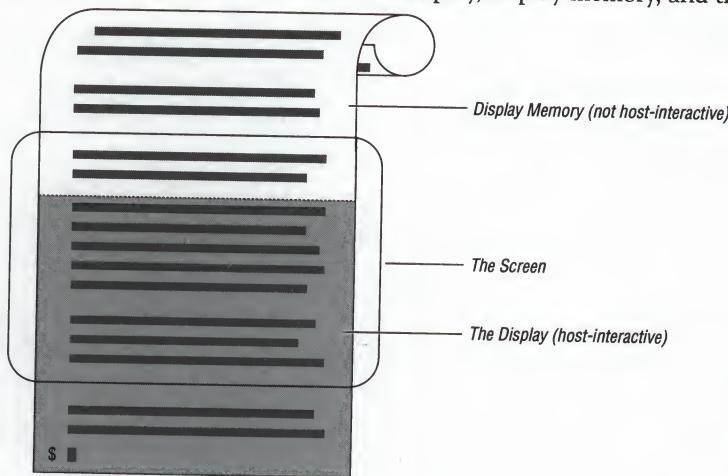
## Display Memory

Display memory contains both the information visible on the display and information that has scrolled off of the display. It is a log of what has recently been sent from the host to the PC. VT200 and VT300 series terminals have no display memory. Because display memory is unique to Reflection, VMS hosts do not have access to it; the host cannot position the cursor, write to, or otherwise change the contents of display memory.

Once you start working, data starts accumulating on the display. When the display is full and lines begin to scroll off the top, display memory starts to collect. Display memory is the same width as the display; its length depends on the amount of memory available to Reflection. The information in display memory can be viewed, saved to a file, or printed while it is still in display memory. (See page 54 for information about printing display memory.)

Reflection's default display memory allotment is 10K, or approximately two and a half screens. You can configure the size of display memory in the Advanced Display Setup dialog box.

The following figure shows how the display, display memory, and the screen interact:



## Page Memory

The VT420 terminal and Reflection offer a feature called “page memory.” This is separate from display memory and consists of 144 lines that can be divided into 1 to 6 pages. A host application, for instance, might set the page memory arrangement to 2 pages of 72 lines each and then write to page 2 while you are looking at page 1. Moving from page to page is done programmatically by the host application.

## Scrolling Display Memory

Use the following steps to scroll within display memory:

1. If there is nothing currently in display memory, choose Command Line from the Tools menu to display the command line.
2. Type `DIR` and press `Enter ↴` to view the contents of your Reflection directory. This adds some text to display memory for you to practice with.
3. Press `Esc` to leave the command line.

4. Practice scrolling in display memory using the following keys:

**To move in this direction**

Up and down (line by line)

Up and down (page by page)

Left and right

**Use these keys**

**[Ctrl]-[↑] and [Ctrl]-[↓]**

**[Ctrl]-[PgUp] and [Ctrl]-[PgDn]**

**[Ctrl]-[←] and [Ctrl]-[→]**

(relevant only if your right margin  
is greater than 80)

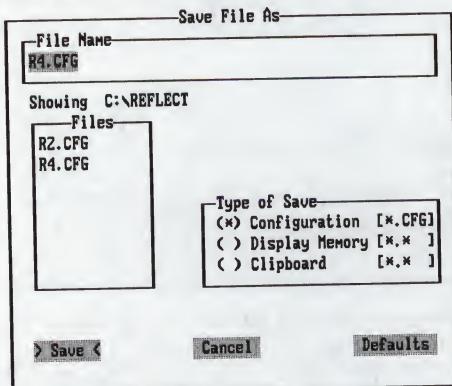
## Saving Display Memory

There may be occasions when you want to keep a record of the information in display memory. For example, you might want to save a message someone sends you, or you may need to capture the display to do some troubleshooting.

There are two ways to save the text in display memory to a file: either log the text to a file as you are working, or save all the text later. Terminal users may find the logging method more familiar, while PC users may feel more at home using a dialog box to save the display memory. Both methods, however, have the same result.

To save the current contents of display memory:

1. Choose Save As from the File menu to open the following dialog box:



**Save File As Dialog Box**

2. From the Type of Save group box, select *Display Memory*.

3. In the File Name text box, type the name of the file to which you want to save the display memory.
4. Choose the Save command button to save the display memory to the file.

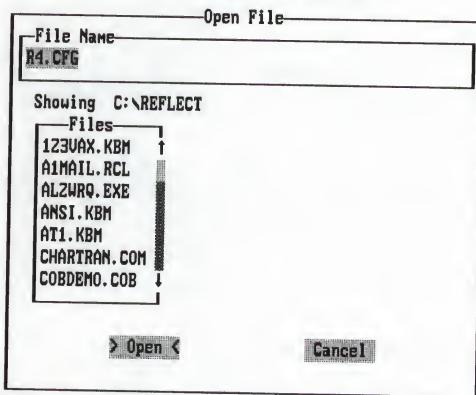
## Logging Display Memory

To log the contents of display memory:

1. Press **[F10]** to display the main menu labels at the bottom of the screen.
2. Press **[F4]**, Logging.

By default, the printer (To Prnt) is selected as the destination for the text. (This is indicated by an asterisk on the label.)

3. To log to a disk file, press **[F2]** to toggle To Prnt off, and press **[F1]**, To Disk. The Open File dialog box appears:



Open File Dialog Box

4. In the File Name field, enter the name of the file you want to log the display memory to, then choose Open.
5. Press **[F5]** to begin logging to disk.

Everything that appears in display memory is now also being sent to a disk file.

6. When you want to stop logging, press **[F5]** again to toggle LOG off, and press **[F1]** to toggle To Disk off.

## Clearing Display Memory

When you are done viewing or saving display memory, you may want to clear the information from your screen and from display memory:

- ▲ To erase all of display and page memory, choose Clear All from the Edit menu.
- ▲ To erase all display memory from the cursor position to the bottom of the screen, choose Clear Display from the Edit menu.

## Copy and Paste

You can copy text from the screen to a temporary buffer called the *clipboard* and then send the text to a host application. Let's say a co-worker sends you a VAX Mail message with information for a report you are writing using the ALL-IN-1 word processor. Rather than re-type that information, you could copy it from the screen and paste it into your report. You can perform copy and paste operations either with the keyboard or with the mouse.

Memory for the clipboard is taken out of display memory; one full screen is about 2K of memory. The amount of memory allocated to display memory is set in the Advanced Display Setup dialog box.

Note that the Copy command on the Edit menu is dimmed until you select text to be copied, and the Paste command is dimmed until you copy text.

## Mouse Operations

To use the mouse for copying and pasting text:

1. Press and hold the left mouse button and drag the mouse to highlight text on the terminal screen; the status line tells you you're in "Select mode." You can also:
  - ▲ Hold down the **Shift** key and click the left mouse button to extend the selection.
  - ▲ Hold down the **Ctrl** key while dragging the mouse to select a rectangular area.

2. Once you have selected the text with the mouse you can:
  - ▲ Choose Copy from the Edit menu to copy the text to the clipboard.
  - ▲ Press **PrtSc** to print the selected text. If a disk file is open, the selected text is written to disk.
3. Choose Paste from the Edit menu to paste the text from the clipboard to the host.

## Keyboard Operations

To use the keyboard for copying and pasting text:

1. Press **Alt**-**C**; the status line tells you you're in "select mode."
2. Use **Shift**-<arrow key> to do a normal select, or **Ctrl**-<arrow key> to do a column select. You can use any arrow key, depending on the direction in which you want to select text.
3. Once you have selected the text you can:
  - ▲ Choose Copy from the Edit menu to copy the selected text to the clipboard.
  - ▲ Press **PrtSc** to print the selected text. If a disk file is open, the selected text is written to disk.
4. Press **Esc** to leave select mode.
5. Once you exit select mode, choose Paste from the Edit menu to paste the selected text from the clipboard to the host.

## Printing with Reflection

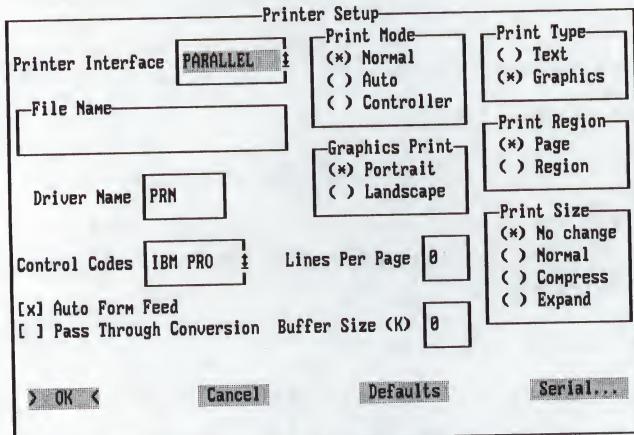
Reflection lets you print the contents of display memory, a PC file, or host output to a local or network printer. (Remember, display memory is the memory that Reflection uses for storing information that has scrolled off your screen.)

For information on graphics printing, see the *Reflection Technical Reference*.

## Printer Setup

You do not need to make any changes to your printer setup if you have a local printer with a parallel connection to your PC (an IBM-compatible or an Epson), or if you are using a network printer.

You can change the setting for the Printer Interface list box in the Printer Setup dialog box to reflect the type of printer and printer connection that you have:



Printer Setup dialog box

If your printer interface is serial, there are additional fields that need to be set up. See the *Reflection Technical Reference* for more information on printer setup and printing.

## Printing Display Memory

There are two ways to print display memory:

- ▲ Using the **PrtSc** key
- ▲ Using the MSAVE command

## The PrtSc Key

To print using the **PrtSc** key:

Keystroke	Description
(right) <b>Shift</b> - <b>PrtSc</b>	Performs a DOS print screen. Available on all keyboards.
<b>PrtSc</b>	Prints the screen, except for the function key labels (if displayed). A form feed is optional (it is configured in the Printer Setup dialog box by the Auto Form Feed check box). Choosing Print Screen from the File menu is the same as pressing <b>PrtSc</b> . (Not available on an XT keyboard.)
<b>Alt</b> - <b>PrtSc</b>	Same as <b>PrtSc</b> ; available on all keyboards.
(left) <b>Shift</b> - <b>PrtSc</b>	Same as <b>PrtSc</b> ; available on all keyboards.
<b>Ctrl</b> - <b>PrtSc</b>	Toggles printing on. From then on, anything you type or display on the screen, excluding the function key labels, is sent to the printer. A form feed is not sent. Press <b>Ctrl</b> - <b>PrtSc</b> again to turn off printing.

If you are using Reflection 4 and are in graphics mode, Reflection does a graphics print screen by default. To print text only, clear the Print Graphics check box in the Graphics Printing Setup dialog box.

## The MSAVE Command

To print display memory using the MSAVE command:

1. Choose Command Line from the Tools menu to display the command line.
2. Type **MSAVE PRINTER** and press **Enter ↴**. All data in display memory is printed.
3. Press **Esc** to leave the command line.

## Printing a PC File

To print a PC file while you're running Reflection:

1. Choose Command Line from the Tools menu to display the command line.
2. Type `PRINT` followed by a PC filename, then press `Enter ↴`.

For example, to print a file `MEMO` in the current directory, type `PRINT MEMO`. If the file is on a different drive and directory, enter the path, as in `PRINT D:\SALES\MEMO`.

3. Press `Esc` to leave the command line.

## Printing from a Host Application

You can print from within a host application to your local printer using the following steps:

1. Make sure the host application is set up to print to the type of printer on your network or connected to your PC.
2. Change the Printer Setup dialog box to reflect the type of printer and printer connection you have. The items most likely to require a new value are the Printer Interface and the Control Codes.
3. Print the file from within your host application; if you're prompted to specify a host or local printer, specify the local printer.

# Transferring Files

Using Reflection, you can transfer files between your PC and a VMS (including Digital VAX and Alpha computers), ULTRIX, or UNIX system, or any host that supports the Zmodem, Xmodem, or Kermit protocols. There are many reasons why you might want to transfer files. For example, you might want to:

- ▲ Incorporate a text document from the host into a word processing application on your PC.
- ▲ Place files on the host so that other users can have access to them.
- ▲ Move a PC-formatted file (such as a Microsoft Word file) from one PC to another via the host.
- ▲ Move a host-formatted file from one host to another via your PC.

To transfer files, a Reflection file transfer program must be available on the host. The transfer programs required for VMS and UNIX hosts are supplied with each copy of Reflection.

This chapter presents an overview of file transfer, and then shows you how to send and receive files.

## File Transfer Overview

If transferring files is new to you, review the following section to gain a better understanding of how file transfers work.

### What is a file transfer protocol?

When transferring files between two computers, a set of rules must be established to determine how to transfer the information. A *protocol* defines the rules.

Protocols can specify error-checking and correction rules to ensure that the information you transfer is sent and received accurately. A protocol controls the way information is transferred between systems, but not what is actually transferred. It is simply a way of moving data within boundaries.

## What protocol does Reflection use?

By default, Reflection uses its own WRQ file transfer protocol; this is Walker Richer & Quinn's proprietary protocol. The WRQ protocol uses CRC-CCITT error-checking during each transfer to ensure error-free transmission. It offers at least four major advantages over public domain protocols:

- ▲ Faster transfers: either fast file transfer (when connecting over LAT) or data compression is used to speed up the transfer.
- ▲ File transfer settings control: you specify both data translation parameters and file transfer settings.
- ▲ Minimal keyboard entry: to complete a successful transfer you only need to press a few keys. You can also use Reflection's command language to further automate file transfers.
- ▲ Wildcard support: send or receive groups of files using wildcards.

## What other protocols does Reflection support?

Reflection supports the Zmodem, Xmodem, and Kermit public-domain protocols and the OLD-WRQ protocol (which uses the transfer host programs VAXLINK.EXE and unixlink).

## What software do I need on the host to transfer files with Reflection?

To transfer files using the WRQ protocol, a file transfer program called VAXLINK2.EXE is required on the VMS host—this file is shipped with Reflection. A copy may have already been uploaded by your system administrator; if so, file transfers should work. Otherwise, procedures for uploading the host software are supplied in the *Reflection Technical Reference*.

## How do I know what my file type is?

When you choose the Transfer command from the File menu, the WRQ File Transfer dialog box offers a choice of three file transfer methods: ASCII, Binary, and Image. As a rule of thumb, you select a method based on the type of file you are transferring.

Use this method:	When transferring files:
ASCII	Between a PC and a host or PC and a Macintosh (text-only) via a host.
Binary	Between two PCs via a host (preserves PC-specific information); use this method for transferring formatted files—this includes sharing files, such as Microsoft Word document files, between a PC and a Macintosh.
Image	Between two host computers via the PC (this method should only be used when you need to preserve host attribute information).

## How do I know what values to set for a transfer?

Walker Richer & Quinn supplies a collection of configuration settings for transferring files to different hosts in a variety of situations, saving you the trouble of having to know what values to set (these “predefined settings” are explained on page 64). For example, if you want to dial into WRQ’s bulletin board, choose Transfer Setup from the File menu. Then, choose the Predefined Settings command button and choose *Zmodem Protocol to BBS*; all appropriate values are automatically adjusted for transferring files in this environment.

## What should I check if a transfer fails?

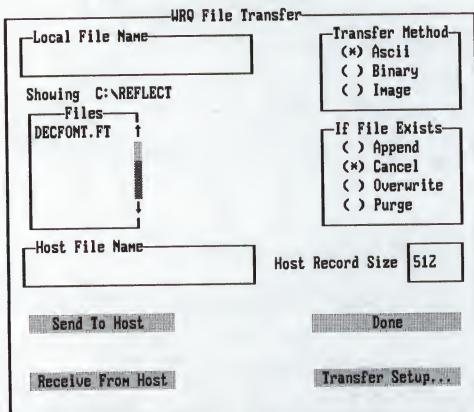
If the host program was never uploaded to the host, your file transfer will not work; contact your system manager and verify that the host program was uploaded.

One other item to check is the Host Startup Sequence text box in the File Transfer Setup dialog box. The Host Startup Sequence must match the name of the program on the host. By default, this field reads *RUN VAXLINK2*. Often removing the word “RUN” (so the field reads *VAXLINK2*) will solve your transfer problems.

Now that you have a better understanding of the file transfer process, go through the remaining procedures to learn how to send and receive files.

## Transferring Single Files

All file transfers using the WRQ protocol are done from the same dialog box for both sending and receiving files. With the Transfer Protocol set to WRQ (the default setting in the File Transfer Setup dialog box), choose Transfer from the File menu to open the following dialog box:



**WRQ File Transfer Dialog Box**

This dialog box allows you to transfer files between the host and PC using any combination of the following methods:

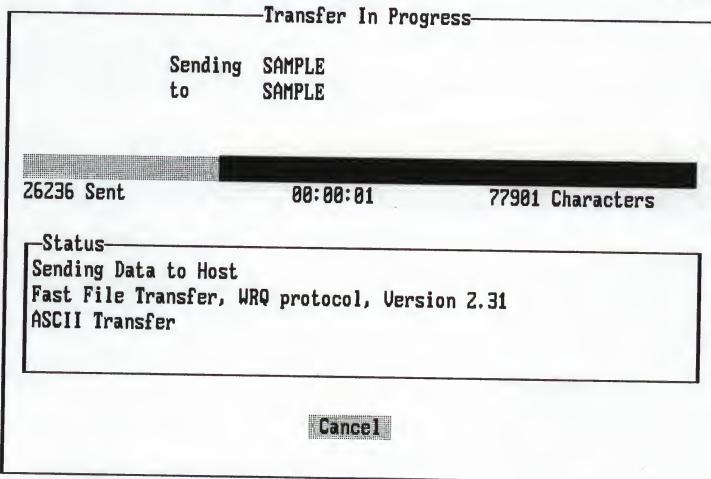
- ▲ Highlight a local (PC) file name in the Files list box and choose the Send to Host button. If you do not enter a name for the host file, the file is given the same name as the local file you are sending.
- ▲ Enter the name of a host file in the Host File Name text box and choose the Receive from Host button. Leave the Local File Name text box blank if you want to use the same file name as on the host (within DOS filename limitations).
- ▲ Enter a name in both the Local File Name text box and the Host File Name text box, and choose the Send to Host Button or the Receive from Host button.
- ▲ Enter a wildcard entry in the appropriate File Names text box; the receiving text box must be empty (or you can specify a path). Then, chose the Send to Host or Receive from Host button—the files are given the same name on the receiving end as they had on the sending end.

## Sending a File

In this exercise you will send a PC file (the Reflection README file) to the host:

1. Start Reflection and log in to the host if you haven't already done so.
2. Choose File Transfer from the File menu to open the WRQ File Transfer dialog box.
3. Type README in the Local File Name text box, or select this file from the Files list box.
4. Type SAMPLE in the Host File Name text box.
5. Choose the Send to Host button to transfer the file to the host.

The Transfer in Progress dialog box opens when the transfer begins:



Transfer in Progress Dialog Box

6. When the transfer completes, the Transfer in Progress dialog box closes.

The README file is still stored on your PC, and SAMPLE (a copy of README) is stored on the host.

## Sending a File using Command Language

You can also use the SEND command to transfer a file. This procedure shows how to send the file README using a Reflection command:

1. Choose Command Line from the Tools menu to display the command line.
2. Type SEND README TO SAMPLE ASCII DELETE and press **Enter ↴**.

Using the SEND command, you entered these parameters:

- ▲ Local filename (README)
- ▲ Host filename (SAMPLE)

The host filename you enter must satisfy the host's filename syntax. VMS allows a name of up to 39 characters on either side of the period.

- ▲ Transfer method (ASCII)
- ▲ Instruction to delete an existing copy of SAMPLE, if there is one (DELETE)

There are a number of other SEND parameters discussed in the *Reflection Command Language* manual.

3. Press **Esc** to leave the command line.

## Receiving a File

This procedure receives the file SAMPLE you sent to the host in the previous example:

1. In the WRQ File Transfer dialog box, type SAMPLE in the Local File Name text box.
2. Type SAMPLE in the Host File Name text box.
3. Choose the Receive from Host button to transfer the file to the host.  
The Transfer in Progress dialog box opens when the transfer begins.
4. When the transfer completes, the Transfer in Progress dialog box closes.

**Note:** When you're transferring longer files, you may want to use Reflection's hot-key feature to work in DOS while the transfer is taking place. Try hot-keying to DOS by pressing **Alt**-(right)**Shift**. Press **Alt**-(right)**Shift** again to return to Reflection. ▲

## Transferring Multiple Files

You can transfer groups of files between your PC and the host using wildcard characters:

- ▲ An asterisk (\*) represents none or any number of characters. **PA\*.\***, for instance, represents all files that begin with **PA**, including files that do not have a file name extension.
- ▲ A question mark (?) represents any single character. **R?ENG.HLP**, for instance, represents all files beginning with **R**, having any second character followed by **ENG**, and ending with the extension **.HLP**.
- ▲ When transferring files from the host to the PC, use the wildcard characters appropriate for the host in the Host File Name text box.

Wildcard characters *cannot* be used in the File Name text box for the system that is receiving the files. For the receiving system, you can:

- ▲ Leave the File Name text box blank; the files go to your current group or directory.
- ▲ Use the File Name text box to specify a different group or directory for the files.

When you perform a wildcard transfer, the files on the receiving system will keep the names they had on the originating system.

The Transfer in Progress dialog box displays the name of each file being sent or received. If an error occurs during a transfer, the remaining files that match the wildcard specification will not be transferred.

Within a wildcard transfer, all files transferred use the same settings for:

- ▲ Transfer Method
- ▲ If File Exists
- ▲ Host Record Size, if appropriate

ASCII and binary files must be transferred separately. In this procedure, you'll send a group of RCL files from your Reflection directory to the host:

1. In the WRQ File Transfer dialog box, type \*.RCL in the Local File Name text box.
2. Clear any name from the Host File Name text box; the files will have the same file name on the host as they do on the PC.
3. Choose the Send to Host button. The File Transfer in Progress dialog box shows each file as it is transferred.

**Note:** The Reflection SEND and RECEIVE commands support wildcard transfers. In addition, they provide syntax that allows you to:

- ▲ Apply time/date filters to wildcard transfers.
- ▲ Exclude files or groups of files from a wildcard transfer.
- ▲ Transfer a host file only when it has a more recent time/date than an existing PC file of the same name.

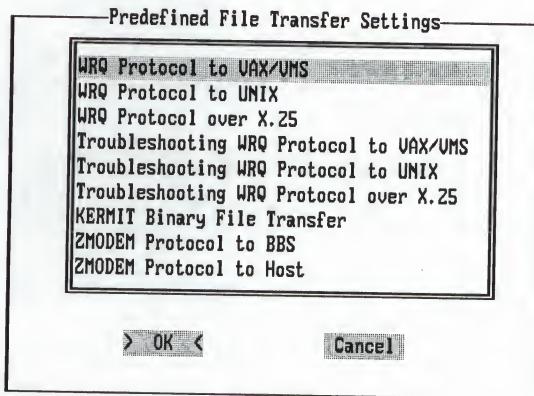
See the *Reflection Command Language* manual. ▲

## Predefined Transfer Settings

Walker Richer & Quinn supplies a collection of transfer configuration settings for transferring files to a variety of hosts in a variety of situations. These settings come directly from our technical support personnel, who regularly help customers in getting set up for transfers to these environments.

With the predefined transfer settings, you can configure transfers in one step, as opposed to selecting and clearing a variety of dialog box options:

1. Choose Transfer Setup from the File menu to open the File Transfer Setup dialog box.
2. Choose the Predefined Settings button to open the Predefined File Transfer Settings dialog box:



**Predefined File Transfer Settings Dialog Box**

Selecting an item here automatically adjusts the appropriate values in the File Transfer Setup dialog box for that specific environment. If a value not shown in the File Transfer Setup dialog box needs to be changed, a message box advises you of the items that will be changed.

3. After selecting a predefined setting, choose OK.
4. If any warning message boxes appear, clear each one by choosing OK.
5. Choose OK to close the File Transfer Setup dialog box, and use the Transfer command from the File menu to transfer files in this environment.
6. If the transfers work successfully, you can save the file transfer settings to a configuration file.

## Using Zmodem to Connect to WRQ's BBS

The following steps explain how to configure Reflection for a Zmodem transfer to or from the WRQ bulletin board:

1. Start Reflection.
2. Choose Transfer Setup from the File menu, select ZMODEM from the Transfer Protocol list box, then choose OK.
3. Dial and sign on to the bulletin board with Reflection's modem dialer. (See "Connecting by Modem" on page 36).

For example, if you're establishing a connection to WRQ's BBS:

- ▲ In the United States you can connect over a modem by calling 206-322-8047.
- ▲ In Europe, dial into WRQ's satellite BBS by calling +31 70 356 2725.
- ▲ You can connect over Internet using Telnet (connect to `bbs.wrq.com`).

## Downloading a File from a Bulletin Board using Zmodem

By using Reflection's default file transfer setup values, the following procedure shows you how to receive (also called *download*) a file from a bulletin board using Zmodem's automatic downloading feature:

1. After connecting to the bulletin board, follow the menus to get to the area where the files are stored.  
If you're connected to WRQ's BBS and are at the Main Menu, press **[F]** to get to the File Menu, **[D]** for the Download Files option, and then select a file area.
2. Configure the bulletin board to use the Zmodem protocol.  
If you're connected to WRQ's BBS, press **[P]** for <Protocol>, followed by **[Enter ↴]**. Press **[Z]** for ZMODEM-90, then press **[D]** for the Download Files option.

3. Enter the file name, then press **[Enter ↴]** to initiate the transfer from the bulletin board.
4. As the transfer proceeds, Reflection's Transfer in Progress dialog box shows you the status of the transfer.
5. To cancel the transfer at any point, choose Cancel in the Transfer in Progress dialog box, or press **[Esc]**.

The file is transferred to your current working directory (by default, REFLECT).

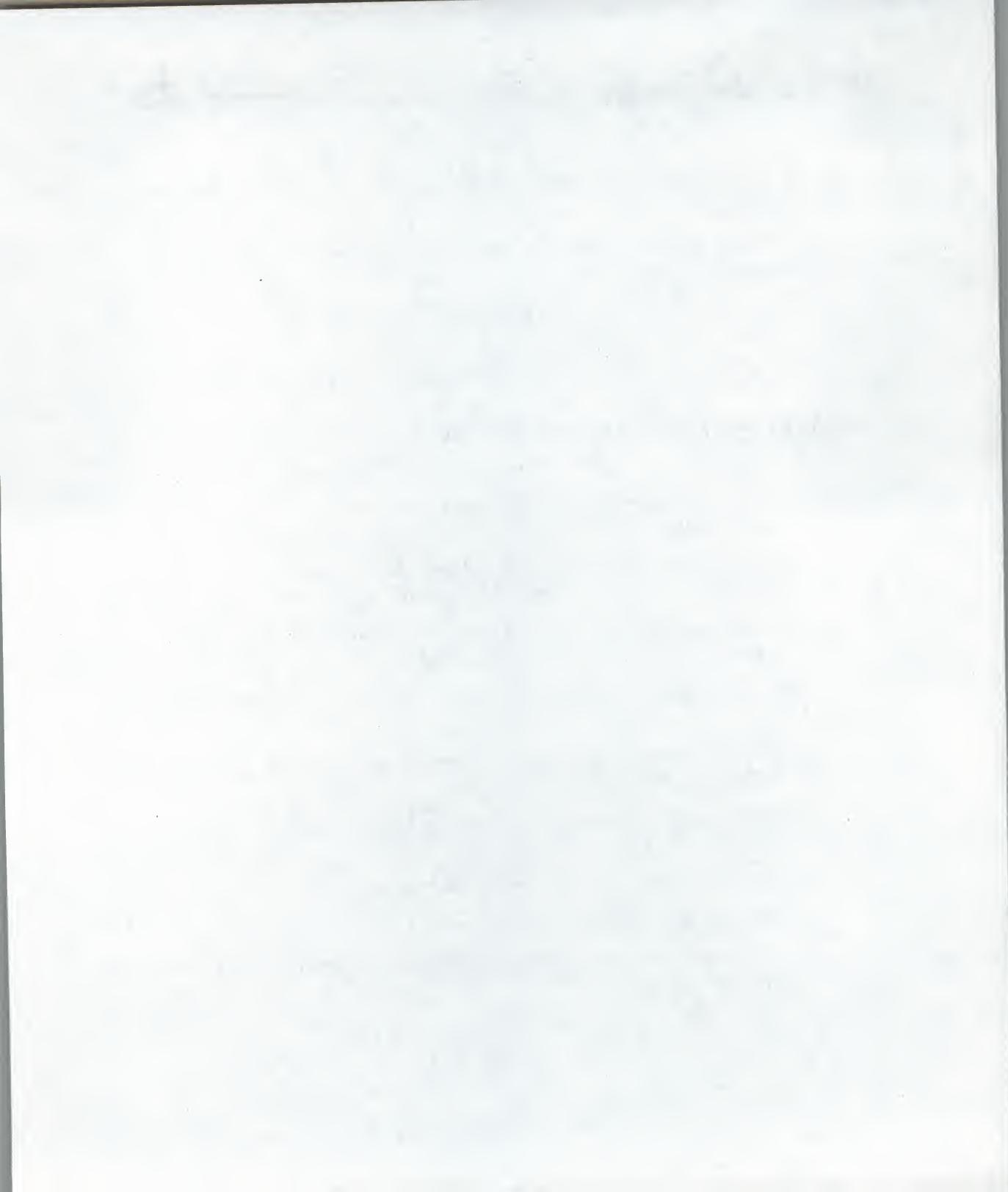
## Sending a File to a Bulletin Board using Zmodem

To transfer a file up to a bulletin board using Zmodem:

1. After connecting to the bulletin board, tell the bulletin board that you want to upload a file.  
If you're connected to WRQ's BBS and are at the Main Menu, press **[F]** to get to the File Menu, then press **[1]** for the Upload Files to WRQ Tech Support option.
2. If prompted (as you are by WRQ's BBS), enter the name you want assigned to the file after it is uploaded to the bulletin board.
3. Choose Transfer from Reflection's File menu to open the File Transfer dialog box.
4. Select the file you want to send in the Files list box, or type the name in the Local File Name text box.
5. Select the appropriate Transfer Method for the file you are transferring. (See "How do I know what my file type is?" on page 58.)
6. To transfer the file, choose the Send to Host button.

The Transfer in Progress dialog box opens.

7. To cancel the transfer at any point, choose Cancel in the Transfer in Progress dialog box, or press **[Esc]**.



# Customizing Reflection

You can customize Reflection's performance and appearance to meet your specific needs. This chapter describes the following ways you can customize Reflection:

- ▲ Creating extra configuration files for specific tasks
- ▲ Changing Reflection's screen colors
- ▲ Setting up softkeys to simplify complex tasks
- ▲ Mapping custom keystrokes to your keyboard

## Creating Configuration Files

Reflection can usually establish a connection using its default values. There may be cases, however, where you'll want to create a configuration file for a specific purpose. For example, if you usually connect using a direct connection, but occasionally use a modem, you may want to create a configuration file specifically for communicating via modem. This way, you won't have to change all the related parameters to accommodate modem settings before you dial out.

You can create any number of unique configurations. Work through the procedures in this section to learn how to create and use configuration files. In this section, you'll practice creating a configuration file for a modem connection:

1. Choose Datacomm from the Setup menu to open the Datacomm Setup dialog box.
2. Choose 2400 from the Baud Rate list box.
3. Choose OK to activate the new setting.
4. To save this change to a configuration file, choose Save As from the File menu.

The Save File As dialog box appears. In the File Name text box, Reflection proposes the filename R2.CFG or R4.CFG, depending on which product you're using.

5. Type MODEM.CFG in the File Name text box.
6. Be sure the Configuration option button is selected in the Type of Save group box.
7. Choose the Save command button to save the current configuration (all current settings in all Setup dialog boxes) to a file called MODEM.CFG. You should use the extension ".CFG" for configuration file so you can quickly identify them.

MODEM.CFG is now your current configuration.

Use these steps to create any number of different configuration files. Then, when you need to change terminal options or communications settings to connect to another host or run a different application, you can just load the configuration file that contains the settings you want. This is described next.

## Using a New Configuration File

Whenever you start Reflection, Reflection looks specifically for a configuration file called R2.CFG or R4.CFG, first in the current directory, then in the directory specified by SET REFLECT in your AUTOEXEC.BAT file (setting the directory for Reflection files is optional), then in your path. If the configuration file is still not found, Reflection looks in the directory from which the program was run.

If R2.CFG or R4.CFG is not found, Reflection starts with its built-in default settings and opens the Basic Setup dialog box. This is what happens when you start Reflection the very first time.

There are two ways to load a new configuration file: when you start Reflection and from within Reflection.

### Loading a Configuration File when You Start Reflection

In this procedure, you'll learn how to start Reflection with the MODEM.CFG configuration file you created earlier:

1. If you are running Reflection, press **Alt**-**X** to exit.
2. If necessary, change to your Reflection directory (for example, **CD \ REFLECT**).
3. To start Reflection with a configuration file other than R2.CFG or R4.CFG, type the name of the configuration file after the command to start Reflection:

R2 MODEM.CFG

R4 MODEM.CFG

Reflection is now running with the setup values stored in the file MODEM.CFG. In the remaining steps, you'll verify the new configuration settings.

4. Choose Datacomm from the Setup menu to open the Datacomm Setup dialog box.

Notice that the baud rate is set at 2400. Press **Esc** to close the dialog box without making any changes.

You can also verify the configuration settings from the command line using the Reflection VERIFY command:

1. Choose Command Line from the Tools menu to display the command line.
2. Type VERIFY BAUD and press **Enter ↴**. You should see the following displayed on your screen:

BAUD 2400

You can type VERIFY alone to see a list of all current configuration settings, or type VERIFY CHANGED to see how your settings differ from the default settings.

3. Press **Esc** to leave the command line.

### **Loading a Configuration File from within Reflection**

You can also load a configuration file after Reflection is running. Let's assume that you do not want to use MODEM.CFG (in which you set a baud rate of 2400). You can load R2.CFG or R4.CFG back into Reflection as follows:

1. Choose Open from the File menu to display the Open File dialog box.
2. Make sure the Configuration option button is selected in the List Files of Type group box.
3. Select the configuration file you want to use from the Files list box (in this case R2.CFG or R4.CFG).
4. Choose the Load command button to load the new configuration file in place of your current configuration file.

The configuration file MODEM.CFG is still in your directory, but it is no longer in effect.

After you load a configuration file, the filename is shown on the File menu next to the Save command.

# Changing the Color Setup

Reflection lets you set up your text mode colors and save the changes to a configuration file. There are three items you can change the color for:

- ▲ The foreground (text) and background (screen) colors of your display
- ▲ The foreground and background colors for the function key labels, status line and inverse video
- ▲ How data sent from the host is displayed

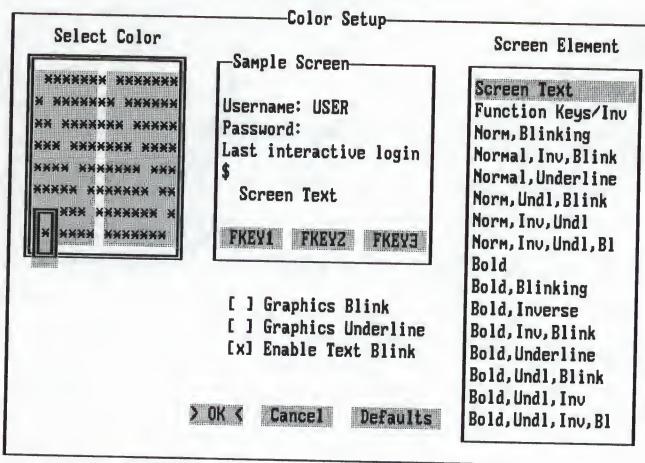
This chapter describes only the first two items. For information on changing host color attributes, see the *Reflection Technical Reference*.

## Changing the Screen and Function Key Colors

The following procedure show how to change your screen color to turquoise and the function key labels and status line to blinking red. (If you have a monochrome adapter, you will see shades of gray rather than color.)

1. Choose Color from the Setup menu to open the Color Setup dialog box.

The following example shows the Color Setup dialog box for Reflection 2; the Reflection 4 dialog box is slightly different:



Color Setup Dialog Box

2. To change the screen colors, make sure that *Screen Text* is highlighted as the *Select Element*.
3. Press **[Alt]-[S]** to move to the *Select Color* box.

The default screen color (blue background with white text) is indicated by a highlighted box.

4. To make the screen background turquoise with white text, use the arrow keys or mouse to move the color selection highlight until you see the new colors in the *Sample Screen* box change.
5. Choose **OK** to activate the new color setting.

To change your function key labels and the status bar to blinking red:

1. Choose *Color* from the *Setup* menu to open the *Color Setup* dialog box.
2. Make sure the *Enable Text Blink* check box is selected.
3. Select *Function Keys/Inv* from the *Screen Element* box.
4. Press **[Alt]-[S]** to move to the *Select Color* box.

The default function key labels and status line color (white background with black text) is indicated by a highlighted box.

5. To make the labels and status line blinking red with black text, use the arrow keys or mouse to move the color selection highlight until you see the new colors in the *Sample Screen* box change.
6. Choose **OK** to activate the new color setting.

If your function key labels are not visible, press **[F10]** to display them; (press **[F9]** if you want to hide them).

Try experimenting with different color combinations. If you find a combination you like, choose **OK** to activate it, then choose **Save** from the *File* menu to save the color settings to a configuration file.

## Graphics Mode Color Setup

Reflection 4 has an additional Setup dialog box for controlling the color of graphics. The appearance and operation of the dialog box is similar to the text-mode Color Setup dialog box described above.

To change graphics color settings in Reflection 4:

1. Choose Graphics from the Setup menu. The Graphics cascading menu appears.
2. Choose Color from the Graphics menu to open the Graphics Color Setup dialog box.
3. Make any color changes, then choose OK.

For more information on graphics color in Reflection 4, see the *Reflection Technical Reference*.

## Setting Up Softkeys

Softkeys are a set of eight function key labels at the bottom of your screen that you can customize. A single softkey can be set up to execute a host or Reflection command, reducing a complex process or something you do often to a single keystroke.

After starting Reflection, press **[Alt]-[F9]** to display the softkey labels. By default, the labels read S1 through S8 and have no functions associated with them. You can assign new labels and functions to the softkeys using the Softkey Setup dialog box.

When setting up a softkey, you can pick from three types of attributes:

### *Normal*

The definition is treated as if it had been entered at the keyboard.

### *Local*

The definition is treated as if it had been received from the host.

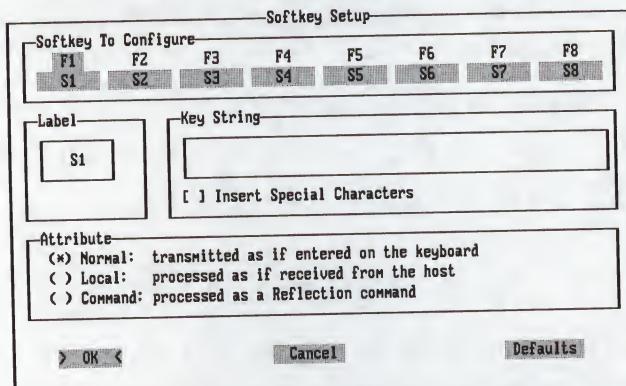
### *Command*

The definition is interpreted as a Reflection command.

In the following example, you will define S1 (for "softkey 1") to send the command to start ALL-IN-1, a VAX application, and S2 to perform a DOS directory listing of the C drive from within Reflection.

To set up softkeys:

1. Choose Softkeys from the Setup menu to open the following dialog box:



Softkey Setup Dialog Box

2. In the Softkey to Configure box, Press **F1** to configure the softkey that will be activated by the **F1** function key.

The highlight moves to the Label text box.

3. In the Label text box, type ALL-IN-1. This is the text you will see on the softkey label.
4. Move to the Key String text box and type allin1.

If you need to correct your entry, use the editing keys (such as **Spacebar** and **Delete**) to make the changes.

5. Select the Insert Special Characters check box.
6. In the Key String text box, press **Enter ↴**.

This adds a carriage return to the "allin1" command, just as you would press **Enter ↴** after typing allin1 at the host prompt. You should see a carriage return symbol (a musical note or  $C_R$ ) after allin1.

7. Clear the Insert Special Characters check box.  
(Pressing **Esc**, **Tab**, or other navigation keys will not exit the Key String text box but will insert additional special characters.)

8. Verify that *Normal* is selected as the Attribute (the default).
9. In the Softkey to Configure field, Press **[F2]**.
10. In the Label text box, type **C: drive**.
11. Move to the Key String text box and type **DIR C:.**
12. In the Attribute group box, select the Command option button, since the directory listing is a Reflection command.
13. Choose **OK** to activate the new softkey settings.

You can add this setting to your default configuration file by choosing Save from the File menu.

To use the softkeys you just set up, first connect to the VAX, then display the softkey labels by pressing **Alt-[F9]**.

- ▲ Press **[F2]**. You will see what's in the current directory of the C drive.
- ▲ Press **[F1]**. The string *allin1* is transmitted to the host and the ALL-IN-1 main menu appears.

## Displaying Softkeys as the Initial Key Labels

You may want your softkey labels to be displayed all the time in Reflection. To make this change:

1. Choose **Display** from the **Setup** menu to open the **Display Setup** dialog box.
2. In the **Initial Labels** group box, select **Softkeys**.
3. Choose **OK** to activate this setting.

You can add this setting to your default configuration file by choosing Save from the File menu.

## Customizing Your Keyboard

When you run the Reflection Setup program, you have the option of making your PC keyboard operate like a VT keyboard by mapping VT functions to the keyboard's numeric keypad. This information is then saved in your Reflection configuration file. If you want to further customize your keyboard, you can edit the mapping file supplied for your keyboard, and then compile it into a configuration file.

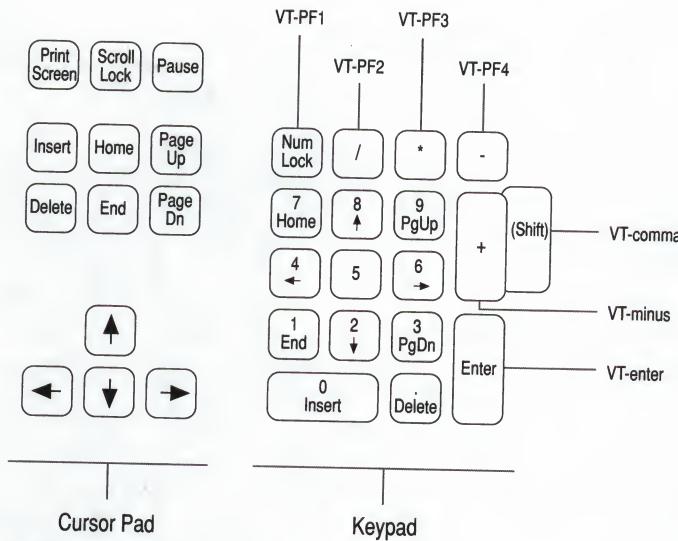
Following are sample lines from ENH3.KBM, a keyboard mapping support file supplied with Reflection. This file maps an Enhanced keyboard so its numeric and cursor keypads function like those on a VT keyboard.

```
keyboard-id = ENHANCED
num-lock = vt-pf1
kp-slash = vt-pf2
kp-star = vt-pf3
kp-minus = vt-pf4

kp-enter = vt-enter
kp-plus = vt-minus
shift kp-plus = vt-comma
```

The first line in the mapping file is the keyboard-id; it indicates the type of keyboard you have. The remaining lines in the file are key assignments. For an Enhanced keyboard, the VT terminal's PF1 function key is mapped to the NumLock key. PF2 is mapped to / (slash on the keypad), and so on.

The next figure illustrates how the ENH3.KBM keyboard mapping file maps VT terminal functions to an Enhanced keyboard's numeric and cursor keypads.



### Enhanced Keyboard Mapping

The keyboard mapping files are in ASCII format with the extension .KBM. The filename indicates the keyboard supported: PC, AT, ENH (for Enhanced).

## Writing Your Own Mapping File

To write your own keyboard mapping file, it's easiest to start with a mapping file intended for your keyboard. The file must be kept in ASCII format, so be sure to save it as text-only if your word processor defaults to another format.

In the following example, you will customize the Enhanced keyboard mapping file (ENH3.KBM) to add custom keystrokes that will perform the DIR command in the Reflection directory on your hard disk, clear your screen, and open the File Transfer dialog box.

To make these changes, open the file ENH3.KBM in a word processor or text editor. Add the following to the end of the file to map the DIR command to the **[Ctrl]-D** keystroke (only the last line here is important; the lines that begin with a semicolon are just descriptive comments):

```
;make ctrl-d display the Reflection command line and  
;list the files in the Reflection directory  
ctrl d = command-line "DIR C:\\\\REFLECT\\\\ ^M^M"
```

The DIR command is preceded by the function name command-line. For a complete list of Reflection and VT functions (clear-display, next-session, etc.), see to the keyboard mapping section in the Reflection *Advanced Topics* manual.

The drive and directory use double backslashes because a single one is a literal escape character in Reflection's command language. The DIR command is followed by two carriage returns (^M^M): one to execute the command, and the other to clear the command line.

To map the command that clears page and display memory to the keystroke **[Alt]-[cursor pad]→**, add this line to the mapping file:

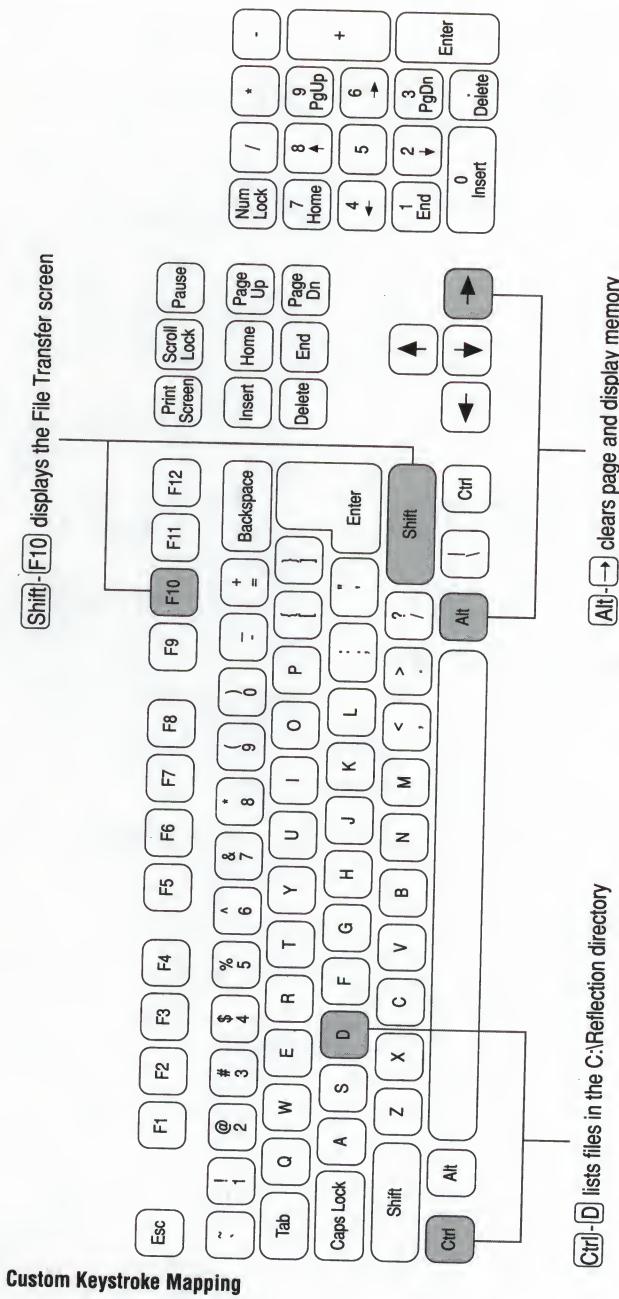
```
alt cp-right = command-line "MCLEAR ^M^M"
```

To map the command that displays the File Transfer dialog box to the keystroke **(right)[Shift]-[F10]**, add this line to the mapping file:

```
rshift f10 = file-xfer-screen
```

After editing the mapping file, you should save it under a different filename (also with the extension .KBM). For example, you might want to call it CUSTOM.KBM.

The next figure shows how your custom keystrokes will be mapped once you compile the mapping file as described in the next section.



## Compiling the Mapping File

After saving the file in your text editor, you must compile it into a Reflection configuration file. Use the following format at the DOS prompt:

```
KEYCOMP <filename>.KBM <filename>.CFG
```

If this is the only mapping you'll use, compile the keyboard mapping into the file R2.CFG or R4.CFG. In Reflection 4, the command then looks like this:

```
KEYCOMP CUSTOM.KBM R4.CFG
```

You may want to compile it into a file such as CUSTOM.CFG to identify that it is a configuration with a special keyboard mapping:

```
KEYCOMP CUSTOM.KBM CUSTOM.CFG
```

To run Reflection with this customized configuration, type the following at the DOS prompt:

```
R4 CUSTOM.CFG
```

## Testing Your Custom Keyboard Mapping

To test the remapped keystrokes you created, perform the following steps once you have started Reflection with the custom configuration file:

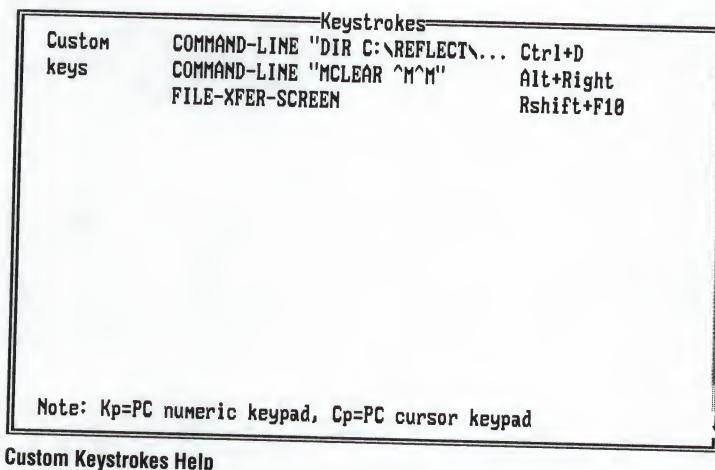
1. Press **[Ctrl]-[D]** to do a listing of the Reflection directory.
2. Press **[Alt]-[cursor pad]-[→]** to clear the directory listing (and all of display memory) from the screen.
3. Press **(right)[Shift]-[F10]** to open the File Transfer dialog box.

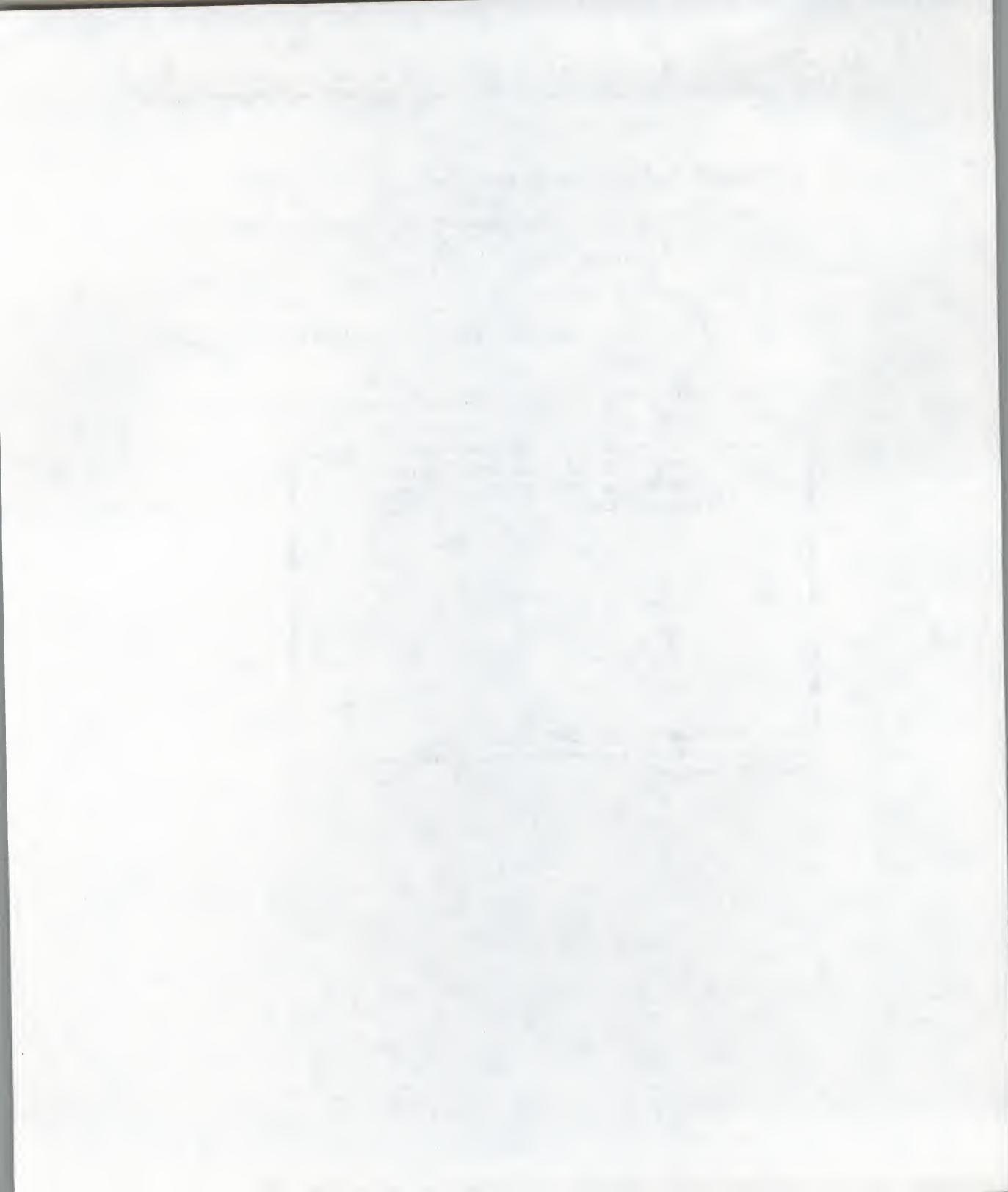
When you create custom keyboard mapping, information about the new keystrokes is added to Reflection's keystroke help.

To see help for the three custom keystrokes you created:

1. Choose Keystrokes from the Help menu to open the Keystrokes help dialog box.
2. Select the "Custom keys" topic:
  - ▲ With the mouse, click on the topic name:
  - ▲ With the keyboard, press the **→** or **←** key until the topic is highlighted, then press **Enter ↴**.

The Keystrokes help dialog box displays information on the custom keystrokes you created:





# Exploring Reflection's Other Features

This chapter describes how to use some other features that expand Reflection's terminal emulation capabilities and performance. These features include:

- ▲ Emulating an ANSI terminal
- ▲ Allocating memory for better performance
- ▲ Running Reflection within Windows
- ▲ Using Reflection's command language

## Emulating an ANSI Terminal

Reflection allows your PC to emulate an ANSI terminal for communicating with an SCO UNIX host or with a computer bulletin board service (BBS).

The first thing you will notice in ANSI mode is the Reflection screen changes from blue background to black. Once you connect to your SCO UNIX host or a BBS, the screen will display the color attributes the host sets. Some of Reflection's default values change when you choose an ANSI terminal instead of a VT terminal. These differences are explained on the following page.

To emulate an ANSI terminal:

1. Choose General from the Setup menu to open the General Setup dialog box.
2. In the Mode list box, select SCO ANSI or BBS ANSI, depending on which terminal you wish to emulate.
3. Choose OK. The screen color changes from blue to black.

When you set Mode to one of the ANSI choices, or when you change from an ANSI terminal to a VT terminal, many of Reflection's settings are returned to their default values. However, the values for Language, 132 Column Adapter, and Hot-Key are not changed. For a complete list of setup values affected by the ANSI terminal types, see the *Reflection Technical Reference*.

The following items have different default values when Mode is SCO ANSI or BBS ANSI:

Autowrap

Display Setup dialog box. The ANSI default for this check box is selected. When the cursor is positioned in column 80 and another character is received from the host, the cursor wraps to the first column of the next row, where the new character is displayed. For VT emulation the default for this check box is cleared.

Backspace Key Sends

Keyboard Setup dialog box. The default for ANSI is *Backspace*; for VT emulation the default is *Delete*.

Display Rows

Display Setup dialog box. The default number of rows on the terminal display for ANSI emulation is 25. SCO ANSI emulation commonly presumes a display of 80 columns by 25 lines—the size of an IBM PC's display. Reflection 2 and Reflection 4 can display 25 lines on PCs with EGA or VGA adapters. The default for VT emulation is 24.

EGA Character Sets

Video Options Setup dialog box. The ANSI default is *MCS*; for VT emulation the default is *ALL*.

Transmit Pacing

Advanced Datacomm Setup dialog box. The ANSI default is *NONE*; for VT emulation the default is *XON/XOFF*.

UPS Set

General Setup dialog box. The ANSI default is *CP437*. The user preferred supplemental set defines the 8-bit character set used by the host with which Reflection is communicating. ANSI emulation presumes that the host is using a standard DOS character set. VT emulation defaults to the *DEC* character set.

## Allocating Memory

If you use Reflection's multitasking feature to run other DOS applications while Reflection works in the background, you probably want Reflection to use as little memory as possible to allow more room for your DOS applications.

To find out more about what memory you have available, you can run a utility that is shipped with Reflection. Type `MACHINFO` at the DOS prompt. You can either view the information or save it to a file (called `MACHINFO.TXT` by default). Here is some sample information:

Machine ID	IBM AT
CPU Type	80386
System BIOS Copyright	(C)1985-1990, American Megatrends
System BIOS Date	04/09/90
Keyboard BIOS Type	Enhanced
Video Card	Video Graphics Array
Video Monitor	Analog Color Display
Video Memory	256K or more
Video BIOS Copyright	Copyright (c)1988 Tseng Laboratories
DOS Version	5.00
DOS Files (total)	30
DOS Files (open)	6
DOS Buffers	30
DOS Memory (total)	655360
DOS Memory (free)	449712
Expanded Memory	None
Extended Memory (total)	3145728
Extended Memory (free)	0

## Using Expanded Memory

If your PC has expanded memory and a LIM (Lotus, Intel, Microsoft) compatible software driver, use the `/E` switch when you start Reflection. For example:

`R4/E`

This enables Reflection to take advantage of expanded memory. The `MACHINFO` utility (described above) can tell you if you have any expanded memory.

## Saving Memory

There are a number of ways to conserve PC memory in Reflection:

- ▲ You can start Reflection with the smallest predetermined amount of memory using the /MEM:S switch:

```
R2 /MEM:S
```

The S stands for *Small*; other choices are M (Medium, the default), ML (Medium-large), and L (Large).

- ▲ If you do not intend to run a host graphics application, and you have an EGA, VGA, or MCGA card, use the /I switch to start Reflection. This gives you the default EGA fonts (instead of DEC Technical, multinational, or dynamically redefinable character sets) and saves approximately 3.5K of memory for Reflection 2 and 1.5K for Reflection 4.
- ▲ Running Reflection 2 in bit-mapped graphics mode (/B132) requires about 15K more memory than running in regular text mode. If you don't need a bit-mapped screen (to show 132 columns without a special adapter, or to show double-high, double-wide characters), then run Reflection in text mode.
- ▲ Reflection can take advantage of upper memory blocks made available when a 386 machine is running DOS 5.0 and HIMEM.SYS with memory management software such as EMM386.EXE. Using these blocks allows Reflection to take up less space in conventional memory. Make sure that you have a line like this in your CONFIG.SYS file: DOS=UMB. See your DOS 5.0 documentation for more details.
- ▲ If you are not using Reflection 4 to run host graphics, you can save approximately 27K of memory by starting with the /NOGR switch.
- ▲ By reducing the amount of memory allocated for macro storage, you can save more than 5K. Macro storage is set aside for user-defined VT420 macro commands in both Reflection 2 and Reflection 4. In Reflection 4, macro storage can also hold up to 26 *macrographs*—macros that store ReGIS graphics commands. The default macro storage value is 10K for Reflection 4 and 6K for Reflection 2.

To reduce macro storage memory:

1. Choose General from the Setup menu to open the General Setup dialog box.
2. In the Macro Storage text box:
  - ▲ For Reflection 4, replace 10 with 5 if using graphics or with 0 if not using graphics or macros. This saves 5K to 10K of memory.
  - ▲ For Reflection 2, replace 6 with 0 if not using macros. This saves 6K of memory.
3. Choose OK to activate this new setting. (You can also save this setting to a configuration file.)

## State Save

If you find that the options above do not free enough memory for you to hot-key and run an application in the foreground, you can use *state save* as an alternative to background mode. State save (**Alt**-**B**) lets you exit Reflection temporarily without leaving it resident in memory.

When you press **Alt**-**B**, you exit Reflection and all current information about your session is saved to a file. When you start Reflection again, the state save file is loaded. For example, you can be in the middle of a host application such as ALL-IN-1, use **Alt**-**B** to exit, and run a PC application that uses extensive memory. When you start Reflection again, you are back at the same ALL-IN-1 screen.

See the *Reflection Technical Reference* for more information about using state save.

## Running Reflection within Windows

You can run Reflection for DOS within Microsoft Windows. The program information files (PIFs) provided with Reflection include all necessary configuration information required to run Reflection in this environment. There are separate PIFs for running Reflection in windowed and full-screen mode—for example, R2.PIF is for full-screen mode, and R2W.PIF is for windowed mode.

If your Reflection directory is different from the default (\REFLECT), use the Windows PIF editor to update this information. To add Reflection to a Windows group, use the procedures described in your Windows documentation.

Note the following restrictions when you run Reflection for DOS within Windows:

- ▲ The Reflection hotkey (**[Alt]-[right]****[Shift]**) cannot be used within Windows.
- ▲ The **[PrtSc]** key is reserved for Reflection's print display memory operation, but **[Alt]-[PrtSc]** is used by Windows to copy the screen image to the Windows Clipboard.
- ▲ Reflection 2 bit-mapped and Reflection 4 must be run in full-screen mode to support graphics.
- ▲ To run Reflection 2 in 132-column bit-mapped mode, change the R2.PIF file by including **/B132** in the Optional Parameters text box.

## Using Command Language

There are two ways to do most Reflection tasks: using of dialog boxes and menus, or using Reflection's command language. Reflection command language lets you write programs to automate routine tasks. Writing Reflection command files, sometimes called *macro* or *script* files, does not require any programming expertise.

Reflection's command language is both powerful and flexible. With it you can:

- ▲ Change setup parameters
- ▲ Transmit data
- ▲ Send and receive files (see page 62 for an example of how to send a file using command language)
- ▲ Wait for a string from the host

Command language is shared by the other products in the Reflection Series. With minor changes, for instance, a command file you create for Reflection 2 for DOS will also work with Reflection 2 Plus for the Macintosh and Reflection 2 for Windows.

When you choose Command Line from the Tools menu, a horizontal bar appears near the bottom of the screen. This is the *command line*, where you enter Reflection commands. Press **[Esc]** to clear the command line. (The shortcut for displaying the command line is to press **[Alt]-[F10]**.)

You can put a series of commands into a *command file* using an ordinary text editor to automate tasks that you perform on a regular basis (such as logging in and transferring files). Reflection comes with a number of command files. DIALHOST.RCL, for example, is the command file used by the modem dialer, explained on page 36. EXAMPLES.RCL is another file that can be used as a starting point for creating your own command files.

The command language is often described as "BASIC-like," because the rules for its syntax are similar to those for the BASIC programming language. But a knowledge of BASIC is not a prerequisite for using Reflection's command language. The Reflection *Command Language* manual describes the syntax and conventions that govern command language and provides complete information on each command.

## VAX Login Command File

This sample command file logs a user in to a VAX. You can use any word processor to write the commands as long as the file is saved without any special formatting (text-only). This file might be called LOGIN.RCL (the "RCL" extension stands for Reflection Command Language).

```
TRANSMIT "^M"
;wait to be prompted for your name
WAIT 0:0:20 FOR "Username"
IF NOT FOUND
    DISPLAY "^M^JTimed out waiting for 'username'"
    STOP
ENDIF
TRANSMIT "<username>^M"
;for example, TRANSMIT "RALPH^M"
;
;wait to be prompted for your password
WAIT 0:0:20 FOR "Password"
IF NOT FOUND
    DISPLAY "M^JTimed out waiting for 'password'"
    STOP
ENDIF
TRANSMIT "<password>^M"
;for example, TRANSMIT "JBUTH^M"
STOP
```

If you do not want to store your password in your login file for security reasons, then replace the line:

```
TRANSMIT "<password>^M"
```

with the following:

```
ACCEPT V8 NOECHO  
TRANSMIT V8  
TRANSMIT "^M"  
LET V8 = ""
```

To execute this command file in Reflection, choose Command Line from the Tools menu to display the command line. Type `LOGIN.RCL` and press `Enter ↴`.

To execute the command file when you start Reflection 4, for instance, type the following at the DOS prompt:

```
R4 ,LOGIN.RCL
```

The comma is required if you do not specify a configuration file.

## Command Language Help

Reflection's online help contains information on how to use command language.

To get help on command language:

1. Choose Topics from the Help menu to open the Help Topics dialog box.
2. Scroll through the help topics and select "Reflection Command Language" and press `Enter ↴`.

The command language topic contains hypertext links to all of the Reflection command language keywords and to SET parameters.

3. Select the hypertext link for the command language topic you want to see.

For more information on how to use Reflection's online help, see "Getting Help in Reflection" on page 27.

This chapter discusses potential problems with getting a serial host connection, COMCHECK results, starting Reflection, and using your configuration file.

## Serial Connections

If you don't see the login prompt when trying to connect, you may have encountered one of the following:

- ▲ Meaningless characters: lowercase x's, 1/2 signs, curly brackets, etc.

This probably means that the baud rate needs to be changed. Ask your system manager what the correct baud rate is; if you cannot find out, try a different value than the one currently in use. Change the baud rate and try reconnecting using the steps in "Changing Configuration Values" on page 34.

- ▲ Characters appear that are different than those you typed

This probably means that the parity needs to be changed. Ask your system manager what the correct parity is; if you cannot find out, try a different value than the one currently in use. Change the parity and try reconnecting using the steps in "Changing Configuration Values" on page 34.

- ▲ You see nothing at all

This may indicate that you're configured for the wrong COM port, or that the COM port or cabling to the host computer is not functioning properly. Try changing the value of Connection Type in the Datacomm Setup dialog box, and then reconnecting using the steps in "Changing Configuration Values" on page 34.

If you're certain you're configured for the correct COM port, try the "paperclip test" below to determine where the problem lies.

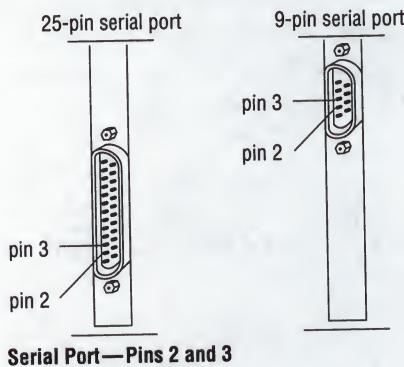
## Testing Your Hardware: The Paperclip Test

In the case of a serial connection, the paperclip test indicates whether there is a problem in the PC or between the PC and host computer.

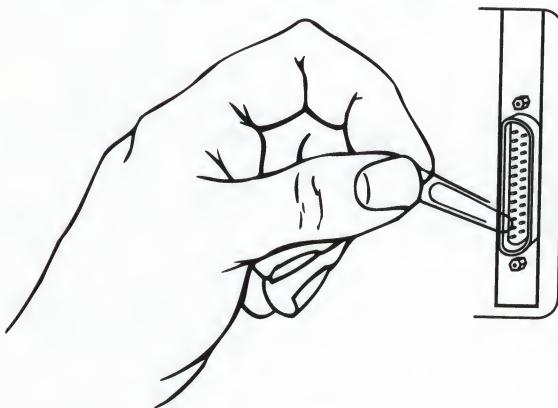
Have another person help out with this test: one person will press keys and the other will hold a metal paperclip against two pins on the back of the PC. Don't worry, you can't get a shock or damage the COM port with this test.

1. Start Reflection (type R4 or R2 at the DOS prompt).
2. Locate pins 2 and 3 of the COM port on the back of the PC.

The COM port is shaped like the letter D, with the long side of pins on the left and the short side on the right. Pin number 1 is at the bottom of the long row, and pins 2 and 3 are directly above it. This is true for both 9-pin and 25-pin serial ports.



3. Using either end of the paperclip, touch pins 2 and 3 without touching the metal shell around the outside of the pins:



4. With pins 2 and 3 shorted together by the paperclip, type some letters.

The letters you type should appear on the screen with the paperclip attached, and should *not* appear when the paperclip is removed. The paperclip sends the characters from the transmit pin (2) to the receive pin (3). As they are received, Reflection puts them on the screen. The paperclip is acting like a very simple host computer, echoing characters back to the PC.

## Paperclip Test Conclusions

If characters appear on the screen with and without the paperclip, then the following is true:

- ▲ The Online check box in the General Setup dialog box is cleared.  
Select this check box to place Reflection online (also known as *remote mode*).  
Save this setting to your configuration file.

If characters *do not* appear with or without the paperclip, then one of the following is true:

- ▲ You didn't have a good connection on pins 2 and 3 with the paperclip, or the paperclip was also touching the shell around the outside of the pins.
- ▲ Your Connection Type is not configured for the correct COM port. Try the paperclip test with Reflection configured for a different COM port.
- ▲ If you're certain you're configured for the right COM port and were unsuccessful in getting the paperclip test to work, then there is a hardware problem in the PC that must be resolved before Reflection can communicate with the host.

The PC's serial communications port may be broken. You can check it by swapping in a good serial port from another PC. Set the correct jumper settings on the port (check the documentation), or repair or replace it if it is broken.

If the characters appear on the screen with the paperclip and do not appear without it, then the PC can successfully send and receive characters. The problem lies outside of the PC—the cable may be the wrong kind or the host port may be bad.

Try the following:

- ▲ Your system manager can usually fix a cabling problem by crossing pins 2 and 3 at one end of the cable or installing a *null modem* connector. This fixes the situation where the host and the PC are both trying to transmit and receive on the same line.
- ▲ You can verify that the port on the host is working correctly by connecting either a working VT terminal to it, or another PC running Reflection that has been working correctly.

## COMCHECK

How to run COMCHECK is explained on page 18; what to do if COMCHECK reports a problem is covered here.

- ▲ COMCHECK does not report any properly installed COM ports.

Reflection will not be able to run. If COMCHECK reports that all COM ports "do not seem to be installed," then there probably is not a COM port present. Unless you are using a network (see page 19), install a COM port before connecting to the host.

- ▲ COMCHECK reports that a COM port is "installed, but the IRQ cannot be identified."

This may indicate that a COM port is not set at the correct IRQ, or that you have two COM ports that are both set up as COM1 (or COM2, COM3, or COM4). Check the documentation for your communications card to see jumpers.

- ▲ COMCHECK locks the PC.

There may be two serial cards in your PC that are set to the same IRQ: neither is really in control. Solve this problem by either removing one of the COM ports, or changing the jumpers or switch settings on your communications card.

## Starting Reflection

If you have problems starting Reflection, try the solutions below.

### "Bad Command or Filename"

If you see this error message when you try to start Reflection, DOS cannot find the Reflection program (R2.EXE or R4.EXE). It may be that:

- ▲ You are not in the Reflection directory
- ▲ You are not typing the correct command (it should be R2 or R4)
- ▲ Reflection has not been properly installed (the Setup program must be used to install Reflection)

## Hardware Problems

If you get a blank screen or the PC seems to lock up when you run Reflection, there may be a problem with your PC's hardware. Some common problems are listed below. Try the proposed solutions in the order shown:

### Serial cards

You have two serial cards both set up as COM1, COM2, COM3, or COM4.

Run COMCHECK, as explained on page 18.

### Video card

You have an incompatible video adapter card, or an incorrect switch or jumper setting on the video card.

Try running Reflection with the /A switch:

R<n> /A

The parameter <n> is 2 or 4, depending on which Reflection product you are running. If you have a video adapter board that *autosenses* or *autoswitches*, try disabling that feature (see the documentation for your video adapter).

### Keyboard

Reflection may be handling keyboard interrupts via an interrupt that your machine does not support. Try running Reflection with the /K0 switch:

R<n> /K0

If running Reflection with /K0 does not solve the problem, you may be using a TSR ("terminate and stay resident") program that does not support Enhanced keyboard functions. Try running Reflection with both /K0 and /K1:

R<n> /K0 /K1

### "Not Enough Memory"

If you see this message when you try to start Reflection, use the guidelines on page 87 for making Reflection use less memory. You can also try to uninstall other programs already in memory, then start Reflection again.

## Configuration File Problems

R2.CFG is the default configuration filename for Reflection 2. R4.CFG is the default configuration filename for Reflection 4.

If you suspect that there's a problem with your configuration, restore the default configuration values:

1. Press **[Alt]-[X]** to exit Reflection.
2. Type R2 /D or R4 /D.

The /D switch starts Reflection using the default communications values and keyboard mapping with which the program was shipped.

3. If you have a serial connection, change the baud rate, parity, etc., according to the steps in "Changing Configuration Values" on page 34.
4. If you make any configuration changes in a setup dialog box, choose OK to activate those settings.
5. When you are satisfied with the settings and ready to save them to disk, choose Save from the File menu to open the Save File dialog box.
6. Reflection proposes a configuration filename: either accept the proposed name, or enter a different one in the File Name text box, then choose OK.

The next time you start Reflection with this configuration file, any communications changes that were saved are in effect.

If you want to see which values in your configuration file have changed from their defaults, display the command line (choose Command Line from the Tools menu or press **[Alt]-[F10]**) and enter VERIFY CHANGED. Any values that differ from the factory default are displayed.

If you want your keyboard remapped after you restore the default configuration values (for example, if you want PF1–PF4 mapped to the top row of your keypad), run just the keyboard selection part of the Reflection Setup program: in your Reflection directory, type KEYCOMP /S at the DOS prompt. See page 10, "Specifying Your Keyboard," for instructions on how to select a mapping.

## When All Else Fails

WRQ offers a variety of online services that provide worldwide online technical support, product information, and utilities for Reflection anytime—24 hours a day, seven days a week.

- ▲ In the U.S.A., use your modem to dial into WRQ's BBS: call (206) 217-0145. There are four dial-in lines at up to 19,200 bps.
- ▲ In Europe, use your modem to dial into WRQ's satellite BBS: call +31.(0)70.356.2725. There is one dial-in line at up to 9600 bps.
- ▲ Connect to the BBS over the Internet. Telnet to: [bbs.wrq.com](http://bbs.wrq.com)
- ▲ Connect to the WRQ Reflection Forum over CompuServe: enter GO WRQFORUM
- ▲ Get files from WRQ's anonymous FTP site at [anon.wrq.com](http://anon.wrq.com) . (Files from the WRQ BBS are in the /bbsfiles directory.
- ▲ Send Internet e-mail to: [support@wrq.com](mailto:support@wrq.com)
- ▲ Request WRQ Technical Notes by fax at (206) 217-9575.

If you cannot resolve your problems, call the Walker Richer & Quinn technical support team. To receive technical support, you must be a registered user of Reflection—just send in your completed registration card.

In the U.S.A., support hours are from 6 A.M. to 5 P.M. Pacific time, Monday through Friday. Call (206) 217-7000. If you need to fax information, the number is (206) 217-9492.

Outside the U.S.A., contact your WRQ authorized distributor. In Europe, call +31.(0)70.375.11.00 for the name of the distributor nearest you. In other countries, call (206) 217-7100 and ask the International Department for the name of the distributor nearest you.

# Other WRQ Products

This chapter describes some additional Walker Richer & Quinn products. Call WRQ for more information about them.

## The Reflection Network Series for DOS

Walker Richer & Quinn's Reflection Network Series for DOS products allow you to use Reflection as a common terminal interface over a wide range of networks. The device drivers that are the core of the Reflection Network Series support multiple protocols simultaneously. This approach provides an economical solution to terminal emulation and network access with minimal hardware. A user can switch from LAT, TCP/IP, or NS/VT sessions to a Novell NetWare or an NDIS-compliant PC network (such as LAN Manager) without rebooting the PC. Many popular Ethernet and Token-Ring network interface cards are supported. Macintosh support for NS and TCP protocols is available with the Reflection Network Series for Macintosh.

### **The LAT Connection**

The LAT Connection lets Reflection users connect their PCs to hosts over an Ethernet connection. To do this, Reflection uses the LAT support provided with VAX/VMS or other hosts. It has a small impact on PC resources and reduces the average cost of a terminal connection. The LAT Connection includes Reflection Network Series device drivers.

### **The TCP Connection**

The TCP Connection gives Reflection users the ability to use PCs as virtual terminals over a TCP/IP connection, and includes support for the high-speed FTP protocol, and a complete TCP/IP protocol stack. The TCP Connection's session management capability is integrated with Reflection and has easy-to-use commands for maintaining and managing terminal sessions to one or more hosts on the network. It also includes full series driver support for simultaneous access to LAT and PC networks.

### **The 3000 Connection**

(Reflection 1 and Reflection 7 only.) The 3000 Connection builds on the TCP Connection by adding easy access to HP Network Services. A user can maintain multiple NS/VT terminal sessions with simultaneous access to PC networks and to other hosts that employ the Telnet, TCP/IP, and LAT protocols.

### **The NS Connection**

(Reflection 1 and Reflection 7 only.) The NS Connection provides NS/VT access and TCP/IP support, but does not include Telnet or LAT support. Full series driver support for simultaneous access to PC networks is included.

## **The Reflection Network Series for Windows**

The Reflection Network Series for Windows is the optimum environment for running networked Windows-based Reflection products with simultaneous access to Windows Socket compatible applications and to your PC network. The Windows-based Setup program, configuration utilities, and the network applications included with the Reflection Network Series for Windows provide an integrated, easy-to-use graphical interface.

The product options within the Reflection Network Series for Windows offer a variety of protocol combinations. You can use NDIS or ODI as your multiprotocol interface for any of these products. Along with your host connections, you have simultaneous access to PC LANs such as Novell NetWare, LAN Manager, or Windows for Workgroups.

The Reflection Network Series for Windows family includes four different product options:

### **The LAT Connection**

The LAT Connection lets Reflection users connect their PCs to VAX hosts or terminal servers over an Ethernet connection. It includes NDIS or ODI interface files, and event logging and statistics utilities. The LAT Connection provides standard LAT configuration support—defining groups, managing a name table, and managing other LAT protocol parameters.

## The TCP Connection

The TCP Connection for Windows provides a TCP/IP protocol stack and a Windows Socket interface to support Reflection for Windows products and other Windows Socket-compatible applications. The TCP Connection includes a variety of utilities and services. You can maintain multiple Telnet sessions with Reflection, run X clients with Reflection X, use the Windows-based FTP utility, or set up your PC as an FTP server.

## The 3000 Connection

The 3000 Connection for Windows provides multiple session access for all the protocols supported within the Reflection Network Series for Windows. In addition to all the features of the TCP Connection described above, the 3000 Connection provides access to HP 3000s. Probe and domain name resolution support is provided. You can maintain sessions to an HP 3000, VAX, IBMs, or UNIX systems. NS/VT, Telnet, FTP, and LAT protocol support is provided.

## NS Open

NS Open is the only product in the Reflection Network Series for Windows that does not provide the underlying transport protocol and network driver interface support. This product provides access to HP 3000s using NS/VT from NT or OS/2 machines or over another Windows Socket compliant TCP/IP stack. The product's NS/VT virtual terminal protocol module is Windows Socket compatible and can use the TCP/IP support available with these systems.

## Reflection for Windows

Reflection for Windows brings the terminal emulation of the Reflection series to the Microsoft Windows (version 3.1) environment. It offers all of the familiar features of the Windows environment, like copy and paste functions, menus, icons, dialog boxes, and on-line help. And as you change the size of your window, Reflection's fonts are dynamically resized.

Reflection for Windows also includes DDE (Dynamic Data Exchange) support. The DDE protocol lets Reflection work in a client-server relationship with other Windows applications that support DDE.

## Reflection 2

Reflection 2 for Windows can communicate with your VAX or UNIX system (including ULTRIX) by emulating VT320, VT220, VT102, VT101, VT100, and VT52 text terminals.

## Reflection 4

Reflection 4 for Windows can emulate DEC terminals from the VT52, VT100, VT200, VT241, and VT300 series. Reflection 4 for Windows also allows your PC to support the ReGIS (*Remote Graphics Instruction Set*) and sixel features of the Digital VT340, VT330, VT241, and VT240 graphics terminals.

The Reflection series shares a command language: command files can be written that will work in the DOS, Windows, and Macintosh environments.

## Reflection 3270

Reflection 3270 (Reflection 8 for Windows) emulates 3270 terminals and provides access to IBM mainframes running TCP/IP. Reflection 3270 features an integrated scripting language and script recorder, a configurable button palette, keyboard and mouse mapping, and configurable hotspots.

## The Reflection X Connectivity Suite

Reflection X is WRQ's Microsoft Windows-based X server: it makes your PC into an X Window System graphics terminal that will let you run X clients on a networked computer (TCP/IP, DECnet, or both) alongside other Windows applications. Reflection X is offered in two products:

- ▲ The Reflection X Connectivity Suite: this includes the Reflection X server, Reflection FTP for Windows, WRQ's TCP Connection (TCP/IP networking software), and Reflection 2 for Windows (VT320 connectivity software).
- ▲ Reflection X: this includes the Reflection X server and Reflection FTP for Windows. It is for users who already have a TCP/IP stack from a third-party vendor.

## Reflection for the Macintosh

Reflection for the Macintosh offers emulation for these Digital terminals:

- ▲ Reflection 2 Plus emulates the VT320, VT220, VT102, VT101, VT100, and VT52 text terminals.
- ▲ Reflection 4 Plus emulates these same terminals, adding the ReGIS and sixel graphics features of the VT340, VT330, VT241, and VT240 graphics terminals.

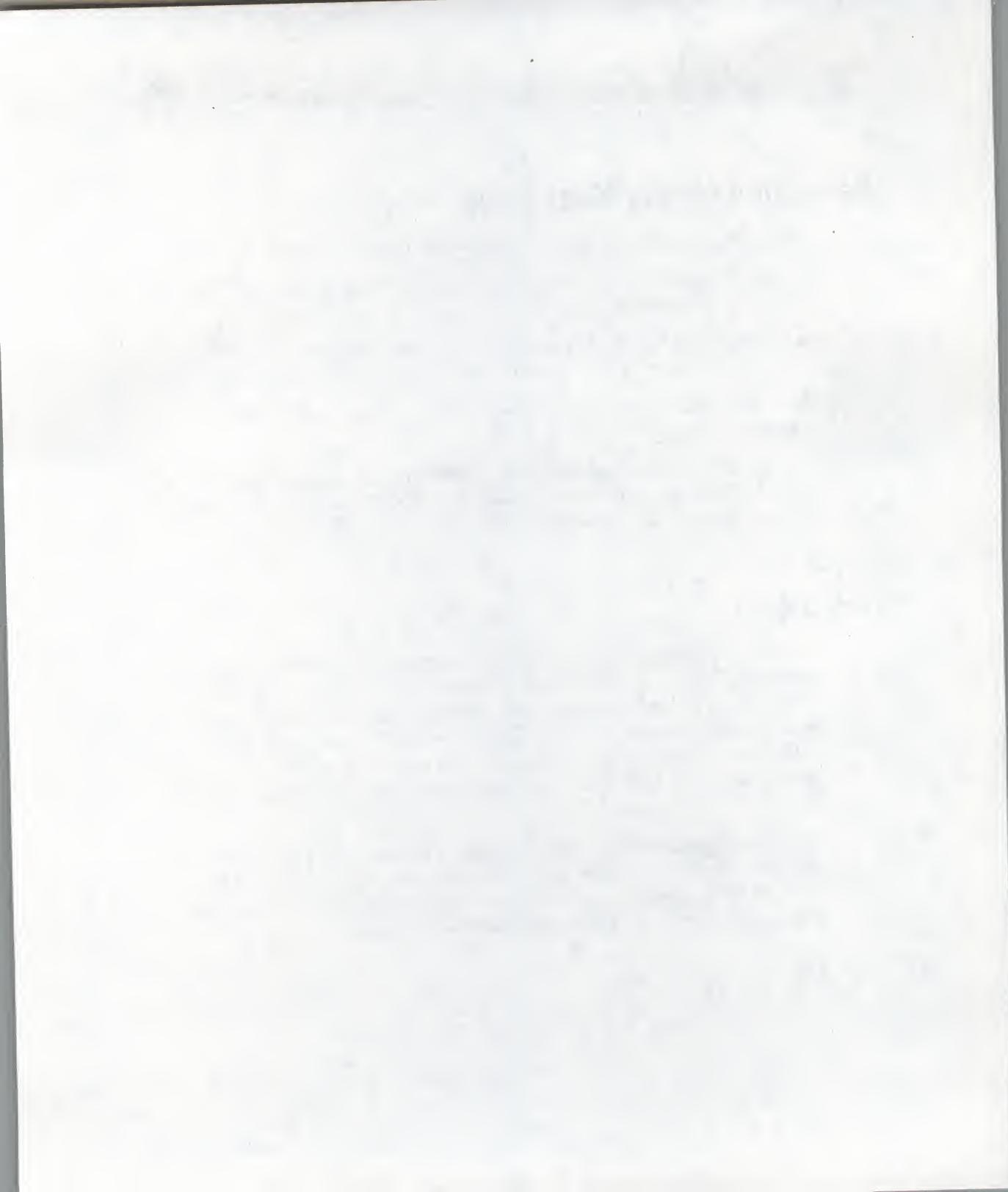
Reflection command files can be written that will work in the DOS, Windows, and Macintosh environments.

Reflection for the Macintosh is System 7 compatible and supports Apple's Macintosh Communications Toolbox. Connection tools are included for serial and network connections, including LAT.

## Direct-to-1

Direct-to-1 integrates your PC or Macintosh with ALL-IN-1, Digital's popular VAX application. Now you can transfer files between your PC or Macintosh and ALL-IN-1, and use VAX-attached printers, too. All your work takes place in the familiar ALL-IN-1 environment: you never need to see the VAX DCL prompt or know the VAX filename for the ALL-IN-1 document that you want to transfer. This gives system managers who have set up captive accounts in ALL-IN-1 an added security benefit.

You can add any combination of the Direct-to-1 file transfer or print options to an ALL-IN-1 menu. Moving ASCII, binary, or image files between the VAX and your PC is as easy as selecting an option on the ALL-IN-1 menu. Reflection transfers the files over any supported asynchronous or network connection.





# Index

132-column mode 44

## A

Activating a configuration 34

ALL-IN-1

file transfer with 105

Allocating RAM 87

ANSI terminal

BBS ANSI 85

emulating 85

SCO ANSI 85

ASCII file transfer method 59

## B

Background feature 43

Baud rate

changing 35

troubleshooting 93

BBS

how to dial from U.S. and in Europe 100  
phone number iii

BBS ANSI

emulating an ANSI terminal 85

Binary file transfer method 59

Bit-mapped mode

Reflection 2 44

Bulletin Board

phone number iii

## C

Cable connection 17

Check boxes 24

Clipboard

copy and paste 52

Color setup

graphics mode 75

text mode 73-74

Color Setup dialog box 33

COMCHECK

checking available COM ports 18

troubleshooting with 97

Command buttons 23

Command language

help 92

using 90

Command line

multitasking 44

sending files 62

shortcut key 90

using 90

Communications settings

activating 34

changing 31-35

saving 41

COM ports

changing 35

listing 18

troubleshooting 93

CompuServe

using for technical support 100

Configuration 70-72

activating 34

changing 34

creating new file 70

file 5

loading 71

of Reflection 31, 34, 70

saving 41, 70

server version 13

updating with keyboard mapping 99

Connection 36-41

available COM ports 18

checking cable 17

over a network 19

procedure 36  
 troubleshooting 93  
**Connection manager** 39  
**Connection Type** 35  
**Copy and paste**  
 display memory 52  
 keyboard operations 53  
 mouse operations 52  
**Customizing Reflection**  
 color setup 73  
 configuration files 70  
 keyboard 78  
 softkeys 75

**D**

**Datacomm port** 35  
**Datacomm Setup dialog box** 32, 34  
**Decompressing files** 12  
**Default settings**  
 changing 31-35  
**Dialog boxes**  
 check boxes 24  
 command buttons 23  
 fields 23  
 list boxes 24  
 option buttons 24  
 text boxes 24  
 using 22  
**Direct-to-1**  
 file transfer in ALL-IN-1 105  
**Display**  
 configuring color 73  
**Display memory** 48  
 clearing 52  
 copy and paste 52  
 printing 54  
 saving 50  
 scrolling 49  
**Display Setup dialog box** 33

**F**

**File transfer** 57-67  
 checking for host program 58  
 overview 57  
 predefined transfer settings 64  
 transferring multiple files 63  
 transferring single files 60  
 using Zmodem 66  
**File Transfer dialog box** 60  
**Function keys**  
 configuring color 73  
 customizing 75

**G**

**General Setup dialog box** 32  
**Graphics emulation** 47  
**Graphics menu (R4)** 33  
**Graphics Setup dialog boxes (R4)** 33

**H**

**Hard exit** 30  
**Help**  
 command buttons 28  
 command language 92  
 hypertext 28  
 installing 8  
 status line 29  
 using 28  
**Host connection**  
 direct 36  
 modem 36  
 network 39  
**Host file transfer program** 58  
**Hot-key** 43  
**HOWMANY**  
 checking server version count 14

**I**

**Image file transfer method** 59  
**Installing Reflection** 5

online help 8  
specifying a keyboard 10  
Telnet support 5, 8  
Internet address  
  using for technical support 100

## K

Keyboard  
  customizing 78  
  navigating Reflection 25  
  shortcut keys 21  
  specifying during installation 10  
  troubleshooting 98  
Keyboard mapping 5  
  compiling 82  
  created during installation 10  
  creating 79  
  testing 82  
Keyboard Setup dialog box 33  
KEYCOMP 99  
/K# switches  
  keyboard troubleshooting 98

## L

LAT Connection 101  
List boxes 24  
Loading configuration files 71  
  from command line 72  
Logging in to the host 36

## M

Macro storage  
  saving memory 88  
Mapping the keyboard 78  
/MEM switch 88  
Memory  
  allocation 87  
  expanded 87  
  saving 87-89  
Menu bar  
  described 21

## Menus

  commands 22  
  shortcut keys 21  
  using 21

## Modem

  checking the COM port 19  
  dialer 36  
  host connection 36

Modem Dialer dialog box 37  
Modem Dialer Setup dialog box 37

## Mouse

  driver 26  
  navigating Reflection 26

## MSAVE

  printing with 55  
  saving display memory 50

## Multitasking

## N

## Network

  connection manager 39  
  interfaces 19  
  server version of Reflection 12

## Network sessions

  menu commands 40

Next Session command 40

## O

## Online help

  command buttons 28  
  hypertext 28  
  installing 8  
  using 28

Option buttons 24

## P

## Page memory

  VT420 emulation 49

Paperclip test 94

  conclusions 96

Parity

changing 35  
 troubleshooting 93  
**Phone numbers**  
 Walker Richer & Quinn iii  
**PIF files**  
 Reflection 89  
**Ports**  
 checking availability 18  
**Predefined File Transfer Settings dialog box** 65  
**Printer Setup dialog box** 33, 53  
**Printing**  
 display memory 54  
 PC file 56  
 printer setup 54  
 Printer Setup dialog box 53  
 within host application 56

**Q**

**Quitting Reflection**  
 hard exit 30  
 state save 30

**R**

**RAM**  
 allocation 87  
**R2.CFG** 11  
**R2.EXE**  
 Reflection 2 program 45  
**R4.CFG** 11  
**R4.EXE**  
 Reflection 4 program 47  
**RCOUNTER**  
 running server version under Windows 14  
**Receiving files**  
 File Transfer dialog box 62  
**Reflection**  
 dialog boxes, using 22  
 keyboard techniques 25  
 menus, using 21  
 mouse techniques 26  
 setting up 31  
**Reflection 2**

bit-mapped mode 44  
**Reflection Network Series for DOS** 101  
**Reflection Network Series for Windows** 102  
**Reflection technical support** 100  
**ReGIS graphics emulation** 47  
**Remapping the keyboard** 78  
**Requirements**  
 equipment 6

**S**

**Saving a configuration** 41, 70  
**SCO ANSI**  
 emulating an ANSI terminal 85  
**Screen**  
 configuring color 73  
**Sending files**  
 File Transfer dialog box 60  
 using command language 62  
**Server version**  
 avoiding user conflicts 13  
 configuration file 13  
 maximum allowed users 14  
 temporary files 13  
**Setup dialog boxes**  
 changing field values 34  
 described 32  
 selecting field values 34  
**Setup program** 5  
 specifying a keyboard 10  
 using after installation 12  
**Shortcut keys**  
 described 25  
 dialog boxes 22  
 menus 21  
**Softkeys**  
 customizing 75  
 initial key labels 77  
**Softkeys Setup dialog box** 33  
**Starting Reflection** 21  
 startup options 9  
 troubleshooting 97  
**Startup switches**  
 Setup options 9

State save 30, 89  
 Status line  
     background mode indicator 43  
     configuring color 73  
     help 29  
 Suspend network session command 40

## T

Tab Setup dialog box 33  
 TCP Connection 101  
 Technical support 100  
     phone number iii, 100  
     reaching electronically 100  
 Tektronix emulation 47  
 Tektronix 4014 emulation 47  
 Telnet support 5  
 Temporary files  
     choosing a directory 9  
     server version of Reflection 13  
 Text boxes 24  
 Text mode  
     configuring color 73  
 Transferring files 57-67  
     dialog box 60  
     from host to PC 62  
     from PC to host 60  
 Troubleshooting 93  
     hardware problems 98  
     serial boards 94  
     starting Reflection 97  
 Troubleshooting  
     configuration 99

## U

unxlink2  
     file transfer program 58

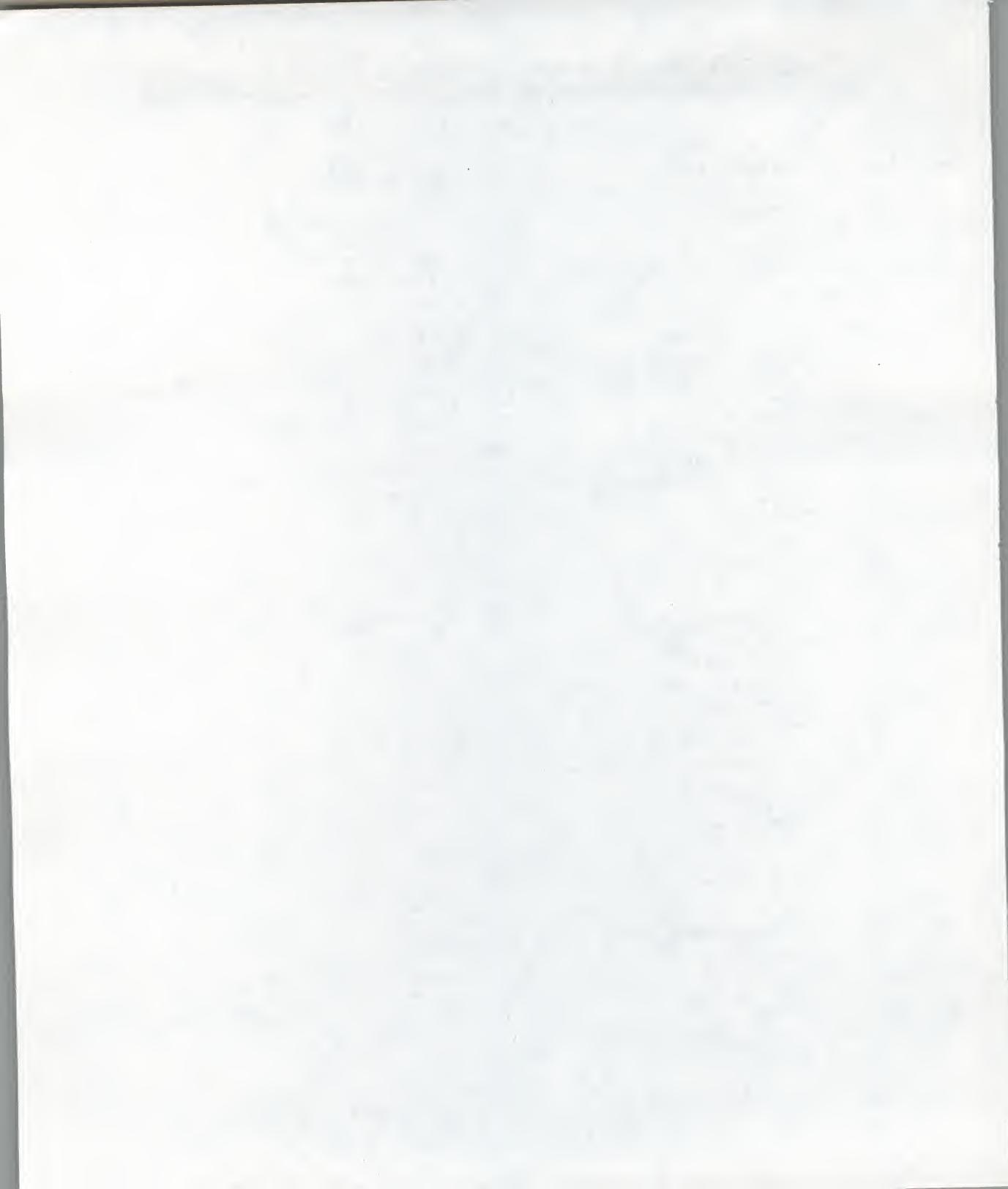
## V

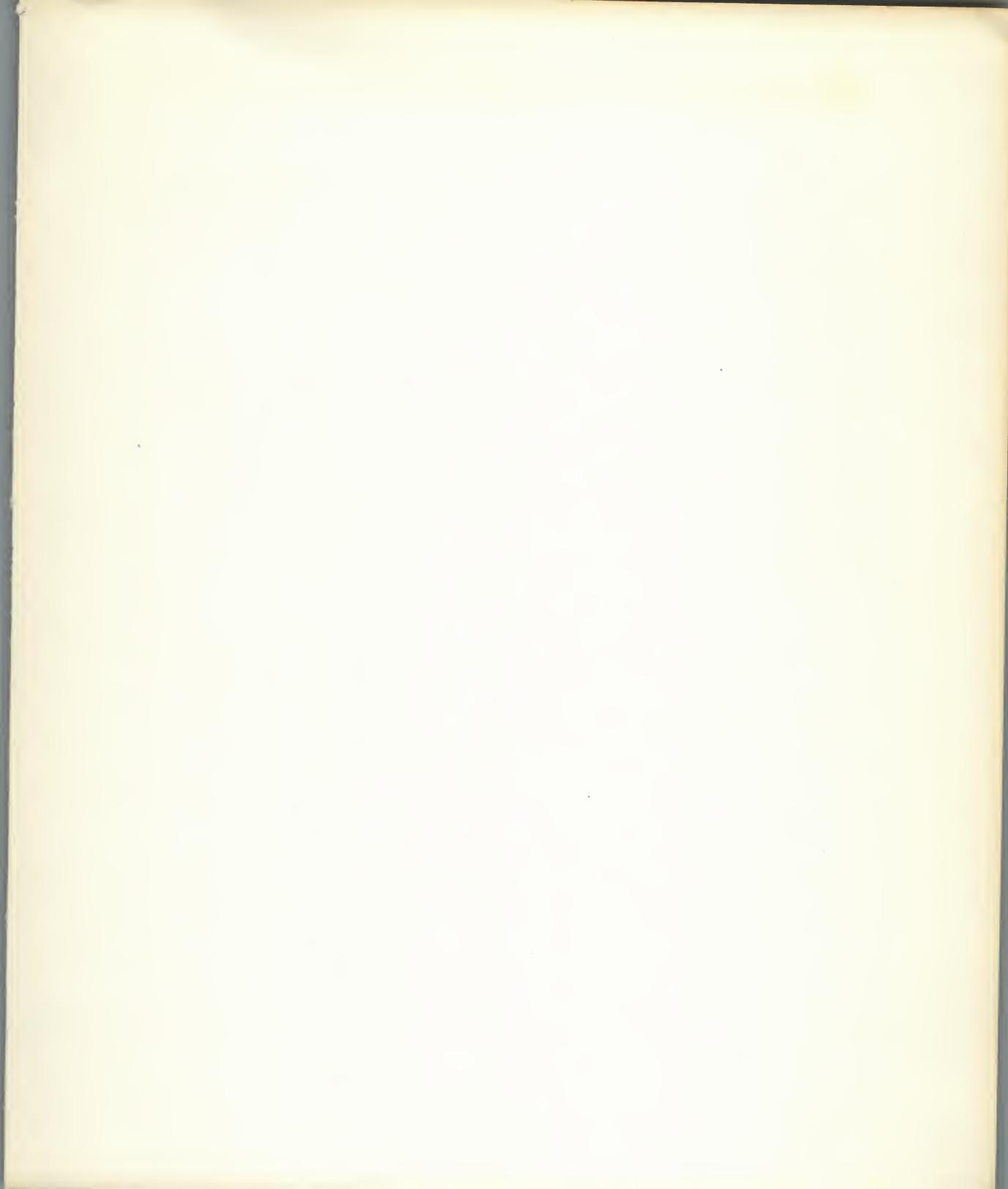
VAXLINK2  
     file transfer program 58  
 Video card

troubleshooting 98  
 VMS  
     transferring files 58  
 VT241 emulation 47  
 VT340 emulation 47  
 VT420 page memory 49

## W

Walker Richer & Quinn  
     telephone numbers iii  
 Wildcard transfers  
     naming of transferred files 63  
 Windows  
     Reflection PIF files 89







20-0013-005